

# THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—19TH YEAR.

SYDNEY, SATURDAY, MARCH 12, 1932.

No. 11.

## Table of Contents

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

### ORIGINAL ARTICLES—

	PAGE.
"Ganglioneuroma of the Cerebrum, with an Additional Case", by LEONARD B. COX, M.D., B.S., M.R.C.P. . . . .	347
"Occult Tuberculosis of the Tonsil in Relation to Tuberculous Cervical Adenitis", by REGINALD WEBSTER, M.D., D.Sc. . . . .	351
"Stammering, a National Tragedy: A Plea for Further Research and Scientific Treatment", by T. GARNET LEARY, M.D., F.R.C.P. . . . .	355
"The Need for a Science of Clinical Anthropology", by FRANK TRINCA, M.C., M.B., B.S. . . . .	361

### REPORTS OF CASES—

"Some Unusual Pelvic Conditions", by HERBERT THROSBY, M.B., F.R.A.C.S., and P. E. WALTON SMITH, M.B., M.R.C.P. . . . .	364
"Septicæmia of Aural Origin", by DOUGLAS G. CARRUTHERS, M.B., Ch.M. . . . .	366

### REVIEWS—

Nervous and Mental Diseases . . . . .	368
Embryology . . . . .	368

### LEADING ARTICLES—

The Surgeon's Mace . . . . .	369
------------------------------	-----

### CURRENT COMMENT—

The Prevention of Malaria . . . . .	370
Impurities in Medicinal Iron Preparations . . .	371

### GANGLIONEUROMA OF THE CEREBRUM, WITH AN ADDITIONAL CASE.

By LEONARD B. COX, M.D., B.S. (Melbourne), M.R.C.P. (Edinburgh).

(From the Baker Medical Research Institute, Alfred Hospital, Melbourne.)

THE study of cerebral tumours has received fresh impetus of late years from the reclassification of the glioma group by Bailey and Cushing.<sup>(1)</sup> The value of their work lies in the application of specific staining methods, mainly of the Spanish school, to an unrivalled series of tumours. Applying the methods of Ramon-y-Cajal, Rio del Hortega and

### ABSTRACTS FROM CURRENT MEDICAL LITERATURE—

Morbid Anatomy . . . . .	372
Morphology . . . . .	373

### BRITISH MEDICAL ASSOCIATION NEWS—

Scientific . . . . .	374
Meeting of the Federal Committee . . . . .	377
Nominations and Elections . . . . .	379

### OBITUARY—

Robert Henry Todd . . . . .	379
-----------------------------	-----

### CORRESPONDENCE—

Workers' Compensation—Typhoid Fever . . . . .	387
Diathermy of Tonsils . . . . .	389

### MEMORIAL TO ROBERT HENRY TODD . . . . .

### SECTION OF THE HISTORY OF MEDICINE OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION . . . . .

### MEDICAL LIBRARIES . . . . .

### BOOKS RECEIVED . . . . .

### DIARY FOR THE MONTH . . . . .

### MEDICAL APPOINTMENTS . . . . .

### MEDICAL APPOINTMENTS VACANT, ETC. . . . .

### MEDICAL APPOINTMENTS: IMPORTANT NOTICE . . . . .

### EDITORIAL NOTICES . . . . .

others, the nature and degree of differentiation of the various tumour cells has been determined. A classification was drawn up, based upon the predominant cell of the neoplasm, and its resemblance to certain mature or embryonic cells observed by others in the development of the elements of the central nervous system.

Although some pathologists regard this method of classification as somewhat artificial, and others, the various staining methods as non-essential, there can be no doubt that their application to the occasional tumour is extremely enlightening. Boyd, in a recent article,<sup>(2)</sup> points out that the ordinary methods are sufficient for routine work and for the identification of the majority of tumours. There

are certain uncommon tumours, however, composed in the main of such cells as astroblasts, neuroblasts or oligodendroglia, whose nature can only be guessed at without use of the specific silver and gold impregnation methods. As many of these more highly differentiated tumours offer, if favourably situated, a far from hopeless opportunity of removal with modern operative methods, their identification and study become of some importance.

The development of the essential cells of the central nervous system is now fairly well established as a result of the work of His, Held, Ramon-y-Cajal, Hortega and others. The primitive columnar medullary epithelium becomes differentiated along two main lines, that of the spongioblast and that of the neuroblast. The spongioblast terminates in the adult classical neuroglia or supporting tissue cell, while the neuroblast is the progenitor of the adult neurone or conductor of the nervous impulse. Meanwhile, certain undifferentiated cells or medulloblasts are assumed to remain in the central nervous system, to become differentiated along either line as required. These undifferentiated cells may give origin to the well known medulloblastoma, so common in the cerebellum of childhood, a type which occurred on twenty-nine occasions in the Cushing series of 254 classified gliomata. The remainder of these gliomata, with the exception of five, had developed along the lines of the spongioblast, to form astrocytoma, spongioblastoma and some of the less common types, while of these five only three had developed along the line of the neuroblast, and no case of ganglioneuroma was recorded. The rarity of tumours composed largely of neuroblasts or neuronic elements may be well seen.

The process of differentiation of the adult neurone is from a primitive germinal cell derived from the epithelium of the medullary plate. An apolar neuroblast is formed, when the protoplasm collects at one end and becomes argentophile. With the formation of two processes, which strongly attract reduced silver, the bipolar neuroblast comes into existence. One process is lost and the cell is now named a unipolar neuroblast. Next, with the formation of several processes, a multipolar neuroblast, resembling somewhat the adult cell, is seen. In the nucleus, which has previously begun to enlarge, the chromatin becomes scanty and one or two well marked nucleoli are seen, and when tigroid bodies are deposited in the cell and later myelin about the axone, the adult neurone is formed. Many variations in this process seem to occur in different situations.

A few examples of gliomata have been interpreted as apolar neuroblastoma without any definite proof. Pick and Bielschowsky, quoted by Bailey and Cushing, describe one, and Bailey and Cushing have two suggestive cases in which, however, they were unable to produce impregnation with silver. Bipolar neuroblastoma are not represented in their series, but Bailey and Cushing mention one uncertain case as occurring in the literature. They describe three tumours largely composed of unipolar

neuroblasts, but have encountered no case in which multipolar neuroblasts predominate and no case of ganglioneuroma.

Ganglioneuromata, or gangliogliomata, if they should be separated from the previous group, may be said on the whole to be largely composed of cells more closely resembling the adult ganglionic type. Bailey and Cushing refer to seven in the literature, one reported by Achucarro in the cerebellum, one by Lhermitte in the cerebellum, Pick and Bielschowsky's case in the *medulla oblongata*, one by Schminke in the right temporal lobe, Dumas's case in the right cerebral hemisphere, a diffuse basilar growth reported by Greenfield, and Robertson's case in the region of the *tuber cinereum*.

Recently de Courville has made a very extensive search of the literature,<sup>(3)(4)</sup> and in addition to reporting three additional cases, accepts twenty-five others. He would consider twenty-eight reported cases of cerebral tumour as belonging to this group, some of them not considered so by the authors reporting them. He is even suspicious of Bailey and Cushing's "*spongioblastoma unipolare*", which, he suggests, may be related to this group. His articles contain abstracts of these individual cases, which add much to their value. His collected series, which include the seven cases referred to by Bailey and Cushing, show eight tumours to have occurred in the region of the *tuber cinereum*, six in the temporal lobe, four in the cerebellum, two each in the parietal and frontal lobes, and two in the region of the pineal body, while one occurred in the *septum pellucidum*, one in the right cerebral hemisphere, one in the cervical cord and medulla, and one is said to be multiple. To this may be added a recent case reported from the Mayo Clinic by Doyle and Kernohan,<sup>(5)</sup> which occurred in the region of the *tuber cinereum*. The case reported here occurred in the left frontal lobe.

The tumours, then, show a predilection for the regions of the *tuber cinereum*, the temporal lobes and the cerebellum, although they may occur in practically any part of the brain.

De Courville's *résumé* leads him to say that the growth is usually small and fairly well delimited without being encapsulated. A further suggestion of its slow growth is indicated by an almost complete absence of distortion of surrounding structures, unless the tumour is so situated as to cause obstructive hydrocephalus or is associated with a large cyst. Haemorrhages within the tumour may give it a mottled appearance, which may be further accentuated by areas of degeneration and small cysts.

Bielschowsky and Simon have recently reported a case of diffuse ganglioneuroma of the cerebellum.<sup>(6)</sup> They review the cases of A. Schmidt, of Lhermitte and of Dumas, and consider them to be identical. This diffuse type, which seems to be the main cerebellar type, can be macroscopically recognized by an enormous increase in volume of extensive portions of the cerebellar hemispheres and vermis. Histologically the molecular layer is enormously wide, the granular zone absent, and the

medullary layer scanty. No typical cerebellar cells are present, but a wide band of neuroblasts in various stages of maturity. In these three cases evidence of maldevelopment was noticed elsewhere as a hydromyelia, a congenital hemi-hypertrophy of one side of a head and face, and in Schmidt's case there were many heterotopies in the left cerebellar hemisphere. Each of these tumours is included in de Courville's summary as of cerebellar origin. In the dozen cases of ganglioneuroma that Bielschowsky and Simon review and accept, they note the presence of phenomena indicating developmental abnormalities. Polydactylism occurred in four. The relation of von Recklinghausen's disease, tuberous sclerosis, and syringomyelia to lesions elsewhere indicating developmental errors, is interesting also in this connexion. One might include also the relation of angioma of the cerebrum to "port wine stain" of the face, and the cerebellar haemangioblastoma to retinal angioma, and other developmental anomalies included in the scope of Lindau's disease.<sup>(7)</sup>

In Bielschowsky and Simon's review they note that in some cases the ganglioneuromata are found in the brains of patients with epilepsy who die suddenly, in others in epilepsy associated with symptoms of a localizable tumour, while in other instances focal symptoms alone were the first manifestation.

The case of Doyle and Kernohan is included to bring the literature up to date.<sup>(5)</sup> Their tumour developed in the region of the *tuber cinereum* in a girl of thirteen, and was associated with *diabetes insipidus* and hypopituitarism. They considered their case to be only the seventh or eighth example of ganglioneuroma to be described. The tumour was firm in most parts, greyish and gelatinous, with cystic areas. It was well defined, but difficult to separate from brain substance. Histologically it showed all stages of transition from apolar neuroblasts to almost mature ganglion cells. Doyle and Kernohan remark on the difficulty of classifying a tumour showing such varying degrees of differentiation, but as it corresponds to cases described in the literature as ganglioneuroma, they have retained this name. They suggest that the name, ganglioneuroblastoma, given by Robertson, is more applicable. The case now to be described labours under the same difficulty of nomenclature. As the differentiation, except in the occasional cell, rarely goes beyond the multipolar neuroblast stage, the name polar neuroblastoma would probably be more appropriate.

#### Case Report.

A man, aged forty-nine years, was admitted to the Alfred Hospital on June 15, 1928, under the care of Dr. Henry Laurie. He had been a healthy man until two months previously, when he was found unconscious in bed, and it was assumed that he had had a stroke. His wife had died three weeks before and his mother some time previously in an asylum.

On examination he was conscious, but drowsy and incoherent. The general systemic examination revealed no abnormality, the systolic blood pressure was 110 milli-

metres of mercury, and the blood urea 36 milligrams per centum. The cerebro-spinal fluid was under increased pressure, but otherwise normal. The Wassermann test gave no reaction. The examination of the central nervous system revealed no abnormality, but the pupils were sluggish in their reaction to light and accommodation, and a bilateral papilloedema was noted, with haemorrhages in the left retina.

The history from then on was one of progressive dementia, with dirty habits. On September 6, 1928, a right temporal decompression was performed, and later a ventriculography, showing normal pressure in the left ventricle, but dilatation and increase in pressure in the right.

On December 20, 1928, a left temporal decompression was performed by Mr. H. Trumble, but no tumour was seen and the patient died a few days afterwards.

At *post mortem* examination the right ventricle was found to be dilated, but otherwise, with the exception of the tumour in the left frontal lobe, the brain, brain stem and cerebellum appeared to be normal. The left frontal lobe contained a smooth tough walled cyst of three to four centimetres in diameter, occupying the substance of the lobe near its basal aspect, but not encroaching on the surface of the brain, although it may possibly have encroached on the mesial surface. Anterior to the cyst was a mass of tumour substance, much firmer than the brain tissue, about four centimetres in maximum diameter, extending nearly to the frontal pole anteriorly, and of uniform white fasciculated appearance.

The tumour, after formalin preservation of over two years, was of a somewhat pinkish appearance, with a finely fasciculated grain, and of considerable firmness. It was clearly defined and could be easily separated by a line of cleavage from the adjacent brain, although showing no semblance of a capsule. Its general texture suggested lobulation. A fine whitish stroma divided off more translucent greyish areas, of the size of sago grains.

The tumour which had been fixed in dilute formalin for over two years, was cut and treated by the following stains and methods: haematoxylin and eosin, iron haematoxylin, Van Gieson's stain, phosphotungstic haematoxylin, toluidine blue, the Bielschowsky method, the Cajal pyridine silver method, the Cajal gold sublimate method, and the Penfield combined method for oligodendroglia and microglia.

The tumour tissue was composed of a mass of large cells, whose cytoplasm was well stained by the ordinary methods. Their form in certain areas was bipolar or unipolar, and in others multipolar. Figure I shows a characteristic bipolar area in which the dense feltwork of fibrils which separates them is clearly seen. Its appearance shows a striking resemblance to Bailey and Cushing's illustrations of their "*spongioblastoma unipolare*". Many of the cells which appear to be unipolar or bipolar in the paraffin sections, were seen on closer examination to be multipolar.

The blood vessels ran in rather scanty fibrous tissue septa, which divided the tumour into a very incompletely lobulated mass. Degeneration was very little in evidence. The general appearance was strikingly regular, and there was no evidence of cystic change or haemorrhage.

Figure II is a higher power view of the centre of Figure I. Figure III, a somewhat lower magnification, shows again the same type of cell and the dense fibrillar network. It is possible that many of the cells of this type belong to the spongioblastic series. Impregnation by Cajal's pyridine silver method and by the Bielschowsky method shows clearly the neuroblastic nature of many of these cells, and particularly demonstrates the areas of multipolar cells and the extension of the processes of all types for some considerable distance into the intercellular feltwork.

Figure IV shows many multipolar neuroblasts, stained by the pyridine silver method, in a section which seemed to be mainly composed of these cells. No photographs can show in a very satisfactory way these large multipolar cells, as it can show only one plane of focus. In actual observation the processes of these cells coming

off at various planes may be noted and their extension followed for a considerable distance into the feltwork. Again, many cells which appear to be bipolar or unipolar will be found on careful focusing to be multipolar. These multipolar areas were very extensive. There are fewer cells in comparison with the bipolar areas, but the feltwork is denser and clearly stained with the silver method.

Figure V, stained by the Bielschowsky method, shows the dense network of unmyelinated fibres about the neuroblasts. In places these fibrils were found to collect into definite strands free from any cellular elements.

The protoplasm of the tumour cells stained deeply with ordinary stains and, the bipolar cells in particular, showed fibrillae extending into the various processes, a feature which may be seen in certain cells of Figure III. In transverse or oblique section the result was often a curious laminated or onion-like appearance. Larger cells were also present, the protoplasm of which, with the silver methods, suggested the appearance of immature thyroid bodies, although these could not be demonstrated by Nissl's method, possibly owing to the age and method of preservation of the tumour. The nucleus of these larger cells at times closely resembled the adult nerve cell type, with a single large nucleolus. More usually, and in particular in the less mature forms, two or more nucleoli were present.

The margin of the tumour was fairly well defined and surrounded by a zone of dilated blood vessels, running parallel to the edge. Silver impregnation showed the nerve fibres passing from the adjacent cortex, in the main to pass around the mass. A few, however, entered it and could be traced for some distance. Many isolated tumour cells could be seen outside the edge, and extended for some distance into the brain tissue. Bipolar and multipolar forms were present, some showing several nuclei, apparently representing attempts at subdivision, and many of the forms showing curiously branched processes.

Use of the Cajal gold sublimate method was rendered possible by Globus's method of reimpregnation. Ordinary classical neuroglia was well impregnated away from the tumour, but became swollen and poorly stained, with retraction of the processes as the tumour edge was approached. In contrast to this appearance the wall of the cyst showed a dense gliosis, with typical and well stained astrocytic forms and a mass of neuroglial fibrilla.

The tumour cells were well defined by the gold stain, and in particular many of the bipolar and unipolar forms, but very little more so than the nerve cells in the adjacent cortex. From their appearance it seemed likely that some of these cells may have belonged to the spongioblast series. The processes of these cells were never associated with the adjacent blood vessels and no astrocytes were observed.

The activity of microglia was very marked about the wall of the cyst, with rod forms and many typical "gitterzellen". About the tumour it was difficult to demonstrate.

#### Discussion on Case Reported.

From the general appearance of this tumour and from the demonstration of the various forms in quantity by the silver methods, it was impossible to resist the conclusion that the tumour was one differentiating mainly along the line of the neuroblast. If we regard it as developing from a type of cell which may differentiate along either line, the presence of spongioblastic forms is only to be expected, and they seem to be fairly constantly present in the ganglioneuromata. Astrocytes are described, although no definite astrocytes could be observed in this tumour. Tumours which somewhat resemble the above tumour type in appearance, are Bailey and Cushing's "spongioblastoma unipolare" and the "astroblastomata".

The illustration of the former tumour in Bailey and Cushing's book closely resembles certain areas

of the above tumour, and it may be that these tumours are somewhat closely related. De Courville<sup>(4)</sup> strongly suspects the "spongioblastoma unipolare" of being an immature ganglioneuroma, and it is possible that Bailey and Cushing might also suspect some of the tumours which de Courville has collected, of belonging to their own series.

The "astroblastoma" is distinguished by astroblast-like cells, with definite sucker feet attached to blood vessels and a tendency for these cells to radiate about blood vessels and connective tissue septa.<sup>(8)</sup> The tumour described showed no tendency to either of these characteristics. Penfield, while accepting the typical cell as an astroblast, notes that the cell is particularly well shown by the silver carbonate method, as also the presence of many other forms of the spongioblastic series. In a recent specimen stained at the Baker Institute these characteristics are clear, but in addition many of the cells are well impregnated by the silver pyridine method. Certain of the multipolar forms could scarcely be distinguished from fairly mature nerve cells, and others from bipolar and unipolar neuroblasts, so that one can hardly be surprised that Greenfield, in 1919,<sup>(9)</sup> described these tumours as neuroblastomata. No similar impregnation of classical neuroglia occurred in the neighbouring tissues.

The explanation is that probably these three groups of tumours are closely related and dominating types of one particular cell occur in each, with varying proportions of the others. Again, it must be remembered that these are tumour cells and not normal embryonic or mature cells. If too close an analogy is drawn, one is apt to overlook the fact that such cells are *sui generis* and may possess their own particular staining reactions or attributes which attract the stains of each line of differentiation. Metaplasia of tumour cells is a well known phenomenon.<sup>(10)</sup> Such cells may regress and redifferentiate along somewhat different lines to the original type. Possibly for this reason certain authors regard a classification based too strictly on normal embryonic and mature forms to be somewhat artificial.

There is no particular need for clinical comment on this case. It presented clinical characteristics common to frontal lobe tumours in general. Its main interest in this respect is that it is possibly only the third tumour of this type to be described in this situation.

Its apparently acute onset is of some interest, but this again is not unusual, particularly in tumours associated with a large cyst, and must imply some sudden change in the tissues about the neoplasm, oedematous or haemorrhagic. Again, it is not remarkable that a tumour of this size could have been present in the left frontal lobe for years without any apparently obvious symptoms.

#### Summary.

A tumour of the left frontal lobe is presented, associated with a large cyst. The main type of dif-

ferentiation of this tumour is along the line of the neuroblast, but as in the main it corresponds to tumours described as ganglioneuromata, this name is retained.

**Acknowledgement.**

The author must acknowledge a deep debt of gratitude to Dr. R. A. Willis, not only for the preservation of the pathological material and for constant advice, assistance and criticism, but also for the microphotography.

**References.**

(<sup>1</sup>) P. Bailey and H. Cushing: "Tumours of the Glioma Group", 1926.  
 (<sup>2</sup>) W. Boyd: "The Glioma Group Studied by Ordinary Histological Methods", *The British Medical Journal*, Volume II, 1930, page 720.  
 (<sup>3</sup>) C. B. de Courville: "Ganglioglioma. Tumour of the Central Nervous System: Review of the Literature and Report of Two Cases", *Archives of Neurology and Psychiatry*, Volume XXIV, 1930, page 439.  
 (<sup>4</sup>) C. B. de Courville: "Gangliogliomas: A Further Report, with Special Reference to Those Occurring in the Temporal Lobe", *Archives of Neurology and Psychiatry*, Volume XXV, 1931, page 309.  
 (<sup>5</sup>) J. B. Doyle and J. W. Kernohan: "Ganglioneuroma of the Third Ventricle, with Diabetes Insipidus and Hypopituitarism", *Journal of Nervous and Mental Diseases*, Volume LXXIII, 1931, page 55.  
 (<sup>6</sup>) M. Bielschowsky and A. Simons: "Über diffuse Hamartome (Ganglioneurome) des Kleinhirns und ihre Genese", *Journal für Psychiologie und Neurologie*, Volume XLI, 1930, page 50. (Abstract, *Archives of Neurology and Psychiatry*, Volume XXV, Number 6, June 1931, page 1338.)  
 (<sup>7</sup>) P. Bailey and H. Cushing: "Tumours Arising from the Blood Vessels of the Brain", 1928.  
 (<sup>8</sup>) W. Penfield: "Classification of Brain Tumours and Its Practical Application", *The British Medical Journal*, Volume I, 1931, page 337.  
 (<sup>9</sup>) J. G. Greenfield: "Forty Intracranial Neoplasms", *Brain*, Volume XLII, 1919, page 29.

**OCCULT TUBERCULOSIS OF THE TONSIL IN RELATION TO TUBERCULOUS CERVICAL ADENITIS.**

By REGINALD WEBSTER, M.D., D.Sc. (Melbourne),  
*Clinical Pathologist, Children's Hospital, Melbourne.*

THE object of the present communication is to place on record the findings in a series of examinations directed towards the detection of tuberculosis in the tonsils of children affected by tuberculosis of the cervical lymph glands. The work was commenced in 1922 in association with Dr. R. M. Downes, who in a paper published in 1923<sup>(1)</sup> referred to 21 patients in whom laboratory investigations with respect to possible tuberculosis of the tonsils had been carried out. Since the date indicated it has become a matter of routine at the Children's Hospital, Melbourne, to examine the tonsils excised from all children with tuberculous cervical adenitis for evidence of tuberculosis and the number so investigated has now reached 86 (Group A). Incidentally, identical methods of examination with the same objective were applied to the tonsils of 46 children in whom either there was no cervical adenitis, or if glandular swelling existed, it was transitory and not of a nature upon which a clinical diagnosis of tuberculosis would be made (Group B).

**GROUP A.**

Group A therefore includes 86 children, of all ages up to fourteen years, in whom tuberculosis of the cervical lymph glands was proved to be present, (i) by histological section of the affected glands, (ii)

by the demonstration of acid-fast bacilli in smear preparations of the caseous contents, (iii) cultivation of the tubercle bacillus from the softened central areas, (iv) "positive" inoculation tests with guinea-pigs, or a combination of two or more of these methods.

In 40 (46.5%) of the 86 children thus shown to be subjects of tuberculous cervical adenitis, tuberculous infection of the tonsil was demonstrated, in the majority by histological diagnosis, in some by animal inoculation, and in others proof of tuberculous infection of the tonsil was furnished by both histological and bacteriological (animal inoculation) methods.

**Methods of Diagnosis in Tuberculosis of the Tonsil.**

The procedure on receipt of a given pair of tonsils in the laboratory varied according to whether the histological method alone was to be applied or microscopical section was to be combined with animal inoculation. In the former event, after a careful inspection the tonsils were formalinized as a preliminary step in the preparation of microscopical sections by the method of paraffin imbedding. When guinea-pig inoculation was to be carried out, each tonsil was divided into two equal portions; one half of each was placed in 2% formalin solution for subsequent section preparation and the other halves were macerated and digested together with antiformin as preparation for the inoculation of the animal.

From the point of view of sterilization with respect to pyogenic organisms the antiformin method proved eminently satisfactory. Of 16 pairs of tonsils so treated for the purpose of guinea-pig inoculation in only one instance was the elimination of pyogenic organisms imperfect with resulting premature death of the animal from sepsis. Experience with many samples of *post mortem* material also has confirmed my confidence in the antiformin method as a means of preparing a satisfactory inoculum practically devoid of risk of adventitious septic infection. Further, the number of contaminated tubes in cultures made from tuberculous lesions induced in guinea-pigs by the injection of an antiformin inoculum, was very few and in no sense a serious embarrassment.

In the majority (70) of the 86 children under discussion, the evidence upon which the demonstration of tuberculosis in the tonsil is based is that provided by histological section. In the remaining sixteen, guinea-pig inoculation was combined with the examination of microscopical sections. The animal inoculation tests were instituted relatively late in the investigation in connexion with studies of the relative incidence of human and bovine tuberculous infection which form the basis of another paper.<sup>(2)</sup> Up to that stage 70 pairs of tonsils had been examined histologically by the not very searching method of cutting one microscopical section embracing the entire cross-section of the tonsil at or near its centre. To have made an exhaustive examination of the tonsils by histological methods would have involved the cutting of serial sections throughout each organ, an ideal which was not attainable in routine work in a hospital laboratory. The fact that as high a proportion as 43% of positive results was obtained by an admittedly incomplete technique for the detection

of tuberculosis of the tonsil, but fortifies the main argument of this paper, that tuberculous infection of the tonsil is to be found in a high proportion of children affected by tuberculous cervical adenitis.

**The Value of Histological Diagnosis.**

In some informal discussions which had taken place at the Children's Hospital, Melbourne, it had been represented that precise bacteriological diagnosis, involving the communication of tuberculosis to the guinea-pig or rabbit, should be supplied as a basis for conclusions regarding the frequency of occurrence of tuberculosis of the tonsil, and that histological appearances unsupported by an animal test, were scarcely sufficient. One criticism offered was that "foreign-body" giant cells might be expected to be observed at times in the tonsils and a histological picture simulating tuberculosis might be occasioned by the entrance of foreign particles through the tonsillar crypts.

While I would be the last to deprecate the necessity for accurate bacteriological diagnosis of infective processes, I would at the same time maintain that the histological evidence of tuberculosis of the tonsil, when it is found, is thoroughly convincing and satisfactory. All stages in the formation of the typical "tubercle follicle" are to be seen, the swollen, poorly staining epithelioid cells, grouped prior to the formation of the distinctive giant cells (distinctive in that they occur at the centre of a "system" composed of giant cell, surrounding epithelioid cells and lymphocytic or fibrous periphery), the whole characteristically the tissue reaction familiar to all microscopists as that occasioned by tuberculous infection. Caseation on a limited scale is to be observed, and almost invariably the surface epithelium of the tonsil is intact. The tubercle follicles are often seen in the immediate neighbourhood of a tonsillar crypt, but in tonsils badly infected, discrete and confluent tubercles may be seen throughout the section (see illustrations in supplement).

It is in the demonstration of tissue reaction that the histological method has perhaps some advantage over that of animal inoculation. The specific tissue reaction of necessity implies invasion of the tonsil by the tubercle bacillus, that is, infection, whereas the communication of tuberculosis to a guinea-pig demonstrates nothing more than the presence of tubercle bacilli. Such bacilli may have been on the surface of the organ or detained in the tonsillar crypts without ever having effected a tuberculous infection.

The ideal of course is to carry out both methods of examination, for, as Table I shows, one method will sometimes detect tuberculosis in the tonsil when the other fails. I am convinced, however, that when histological evidence only is available, it is quite reliable. The inoculation test is not without its fallacies, the child T.O. in Table II providing an interesting experience in this particular. The prospect of successful communication of tuberculosis to a guinea-pig depends much on the activity of the lesion under investigation; and further, any method of preparation of tissues for the purpose of inoculation involving, in the case of the tonsil particularly, its sterilization with respect to pyogenic organisms is attended by a certain loss of bacilli.

Mitchell<sup>(3)</sup> reported a series of 100 children and six adults affected with tuberculous cervical adenitis, in whom he detected tuberculosis of the tonsil by histological diagnosis in 41 instances (38%). In 92 of the 106, guinea-pig inoculation was employed, but positive results were obtained in 20 only (21%). He expressed the view that inoculation experiments performed with tonsil tissue, have not the same value as when performed with other tissues on account of the difficulty of sterilization, but his experience in this respect seems to have been unfortunate.

**Discussion of Results.**

Table I furnishes a comparison of the results obtained by the two methods, histological section and animal inoculation, and it is to be remembered that in every instance the child from whom the tonsils were obtained, was the subject of tuberculous glands of the neck.

TABLE I.  
*Examinations of Tonsils for Evidence of Tuberculosis.*

Method of Examination.	Total.	Results.	Proportion of Positive Findings. <sup>1</sup>
Histological Sections	70	Positive .. 31 Negative .. 39	44.2%
Combined Section and Animal Inoculation	16	Section Animal + } 5 Section Animal - } 3 Section Animal + } 1 Section Animal - } 7	56.2%

<sup>1</sup> Positive Results by Histological Section 37/86: 43%.  
Positive Results by Animal Inoculation 8/16: 50%.  
Total number of Tuberculous Tonsils 40/86: 46.5%.

Of the eight tonsils shown to be tuberculous by animal inoculation, five were definitely tuberculous by histological section. In the remaining three, negative findings were recorded on histological grounds prior to the proof of their tuberculous character furnished by the guinea-pig. Conversely, in the case of one child, the microscopical section afforded evidence of tuberculous infection, while a negative result was obtained by animal inoculation. Seven specimens yielded no evidence of tuberculosis by either method.

Table II sets out in greater detail than Table I the results obtained in the 16 pairs of tonsils to which both methods of examination were applied.

Philip Mitchell<sup>(3)</sup> makes the statement that tubercle bacilli are extremely scanty and difficult to demonstrate in sections of tuberculous tonsils, and in this I found some consolation for many failures to detect the bacilli after staining sections of tonsils which were classical examples of the distinctive inflammatory reaction occasioned by *Bacillus tuberculosis*. Irwin Moore<sup>(4)</sup> also comments on the rarity with which tubercle bacilli are to be demonstrated in sections. In the case of one child, the first in Table II, acid-fast bacilli were found in the deposit obtained from the tonsils at the conclusion of the antiformin process.

ILLUSTRATIONS TO THE ARTICLE BY DR. LEONARD B. COX.

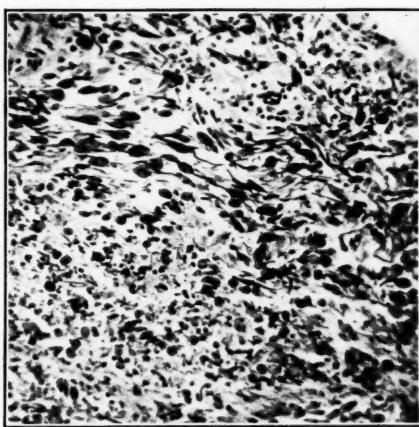


FIGURE I.  
General view. (Iron haematoxylin.)  $\times 125$ .

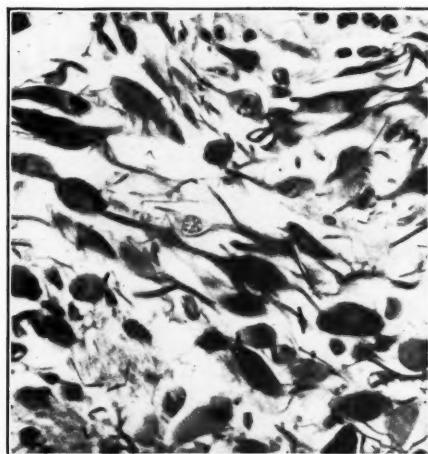


FIGURE II.  
Portion of field of the above. (Iron haematoxylin.)  $\times 500$ .

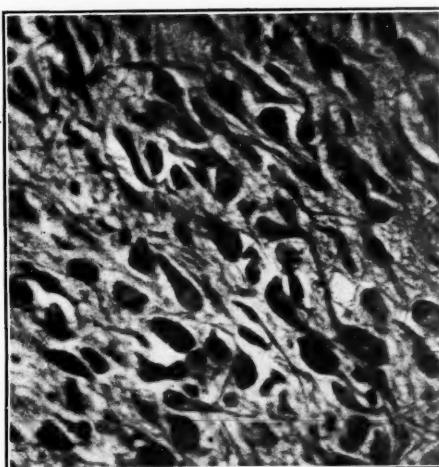


FIGURE III.  
Polar cells of various types, showing the fibrillar background. (Haematoxylin and eosin.)  $\times 300$ .

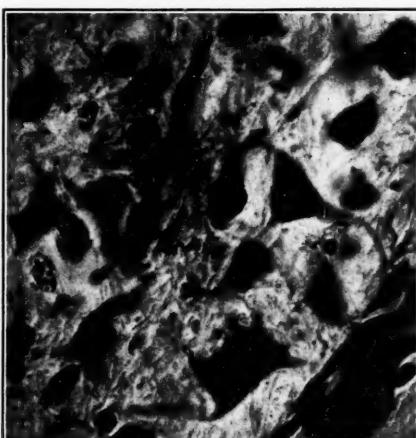


FIGURE IV.  
Area of multipolar neuroblasts. (Cajal's pyridine silver stain.)  $\times 1000$ .

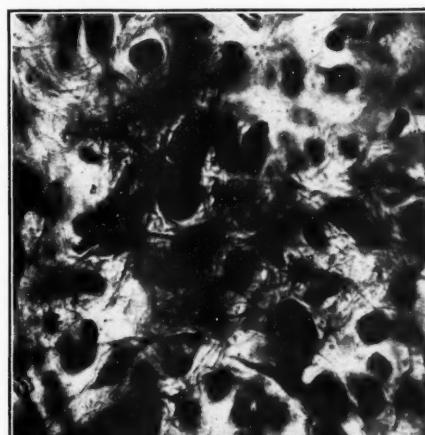


FIGURE V.  
Impregnation of nerve fibrils. (Bielschowsky's silver stain.)  $\times 1000$ .

ILLUSTRATIONS TO THE ARTICLE BY DR. REGINALD WEBSTER.



FIGURE I.  
Low power microphotograph showing numerous tubercle follicles. Section prepared from a tonsil exhibiting no macroscopical lesion.



FIGURE II.  
Low power microphotograph showing confluent tubercle follicles situated deeply in the tonsil near the capsule.

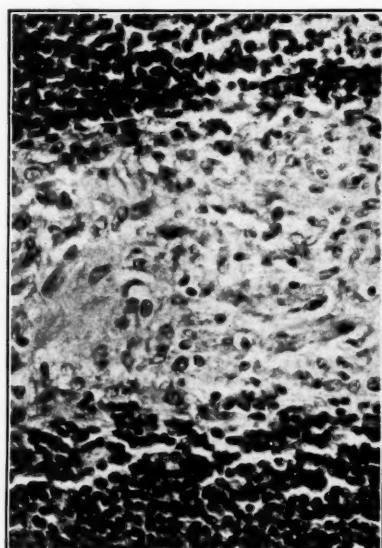


FIGURE III.  
High power microphotograph of section of tuberculous tonsil, showing the swollen, palely staining "epithelioid" cells in the early stage of the formation of a tubercle follicle, prior to the formation of the giant cell.

ILLUSTRATIONS TO THE ARTICLE BY DR. REGINALD WEBSTER.

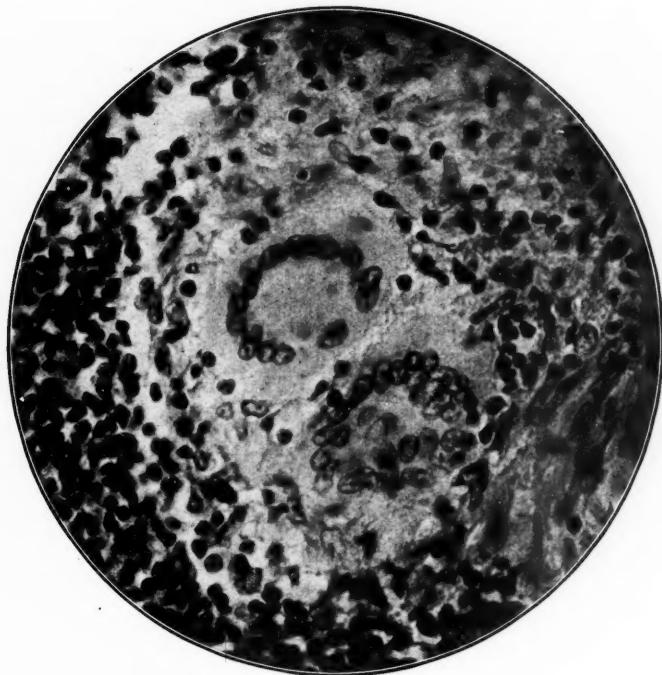


FIGURE IV.  
High power microphotograph of section of tuberculous tonsil. Characteristic giant cells.



FIGURE V.  
Section of tuberculous tonsil, low power microphotograph showing confluent tubercle follicles with central caseation.

ILLUSTRATIONS TO THE ARTICLE BY DR. HERBERT THROSBY AND DR. P. E. WALTON SMITH.

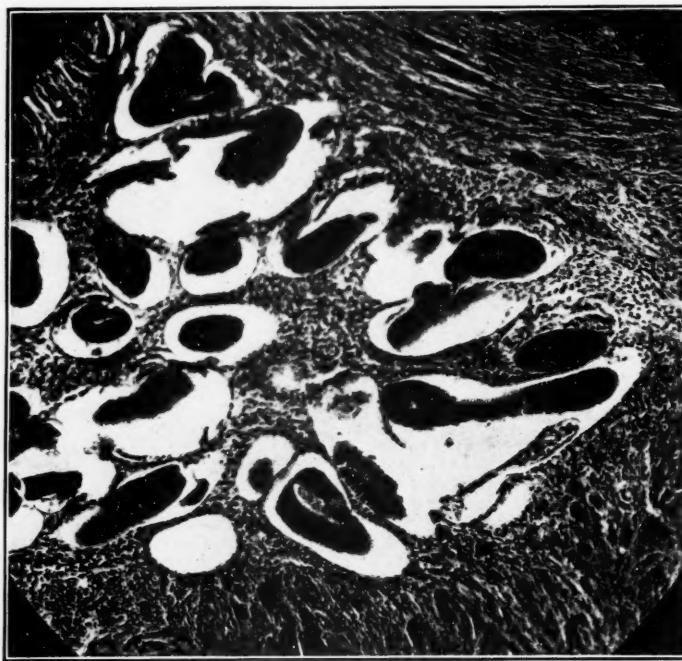


FIGURE I.  
Endometrioma (low power).

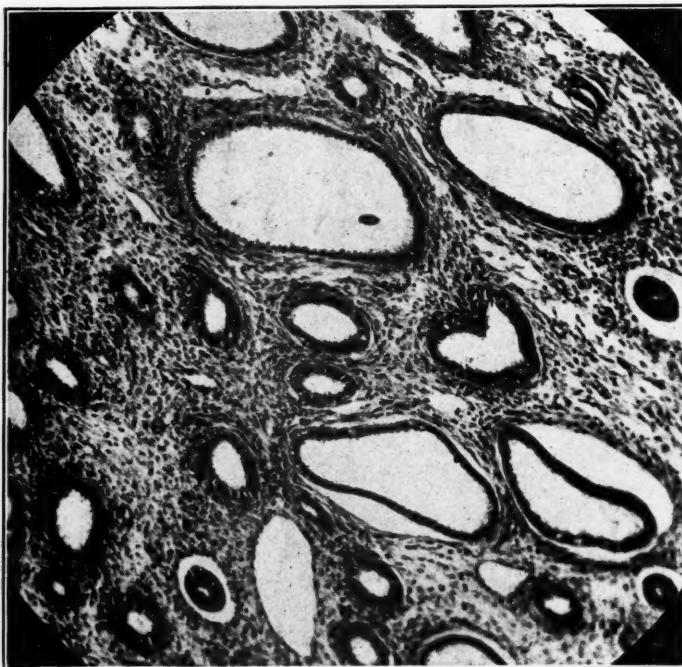


FIGURE II.  
Endometrioma (high power).

TABLE II.

Name.	Age.	Tonsils.		Type of <i>Bacillus tuberculosis</i> .	Remarks.
		Micro-scopy- cal Section.	Animal Inocu- lation.		
B.L.	3	Left + Right -		Bovine	Acid-fast bacilli found in centrifuged deposit after digestion with antiformin. Bovine strain also recovered from tuberculous cervical glands on left side. No family history of tuberculosis.
E.K.	8½	Left - Right -	Negative		Cervical glands on left side tuberculous; guinea-pig infected and human strain of <i>Bacillus tuberculosis</i> recovered.
B.H.	1½	Right - Left -	Positive	Human	Father: Tuberculous larynx. Mother: Pulmonary tuberculosis. Note recovery of <i>Bacillus tuberculosis</i> from tonsils in child of eighteen months of age.
R.W.	9½	Right ++ Left -	Positive	Bovine	Bovine strain recovered by direct culture, also by animal inoculation, from caseating cervical glands on right side. No family history of tuberculosis.
R.H.	5	Right - Left -	Negative		Tuberculous cervical glands on right side; acid-fast bacilli demonstrated.
D.K.	6	Right - Left ++	Premature death from sepsis.		Mother in sanatorium with pulmonary tuberculosis. Contrary to expectation a bovine strain recovered from tuberculous cervical glands on left side.
M.N.	4½	Right - Left -	Negative		Father died of pulmonary tuberculosis. Caseating gland in neck spontaneously ruptured. No acid-fast bacilli demonstrable and material failed to infect a guinea-pig.
R.G.	9	Right - Left -	Negative		Caseating cervical glands, material from which showed no acid-fast bacilli and failed to infect a guinea-pig.
T.O.	6	Right - Left -	Positive		Cervical glands on right side tuberculous by section. The glands, which showed tuberculous changes, failed to infect a guinea-pig. The tonsils, in which the findings were negative occasioned the death of a guinea-pig from tuberculosis.
H.W.	4	Right + Left -	Negative		Tuberculous cervical gland by section; also showed acid-fast bacilli. Tuberculous histology in tonsil. Both gland and tonsil failed to infect guinea-pigs.

TABLE II.—Continued.

Name.	Age.	Tonsils.		Type of <i>Bacillus tuberculosis</i> .	Remarks.
		Micro-scopy- cal Section.	Animal Inocu- lation.		
R.F.	3½	Right - Left ++	Positive	Bovine	Bovine strain of <i>Bacillus tuberculosis</i> recovered from cervical gland of left side. No family history of tuberculosis.
M.A.	6	Right ++ Left -	Positive	Bovine	Cervical gland on right side tuberculous by section. <i>Bacillus tuberculosis</i> cultivated directly. Bovine strain.
R.D.	9	Right - Left -	Negative		Clinically and operatively cervical glands were tuberculous.
J.C.	4½	Right ++ Left ++	Positive	Human	Clinically tuberculous cervical glands. No material received.
I.W.	5	Right - Left -	Negative		Cervical glands tuberculous by microscopical section.
R.C.	7	Right - Left -	Positive	Human	Child was the subject of tuberculous spine and clinically tuberculous cervical glands.

*Macroscopical Appearances.*

The macroscopical changes in the series of tonsils under discussion are to be described in one word, nil. This absence of any outward change in the tuberculous tonsils was one of the most striking and at the same time most perplexing features of the investigation. The tuberculous process in the tonsils was indeed "occult". Not only was there no clinical evidence of tuberculous infection of the tonsil, but in no instance did a close inspection of the tonsil after removal, including a scrutiny of a cross-section, disclose any evidence of the tuberculous process subsequently revealed. Why the changes induced by tuberculous infection of the tonsil should not advance beyond the microscopical stage and yet in other and closely related lymphoid structures, the cervical glands, progress to gross caseation and softening is an intriguing problem.

*Unilateral and Bilateral Infection.*

Of the 37 children whose tonsils were found to be tuberculous by histological section, 17 exhibited the characteristic lesions in both right and left tonsils and 20 in the tonsil of one side only. In every child in whom the tuberculous tonsillitis appeared to be unilateral, it was on the side corresponding to that of the affected cervical glands. In respect of those children in whom the tuberculous tonsillitis was found to be bilateral the usual condition of the cervical glands was that tuberculous adenitis was well advanced on one side with glands slightly enlarged and under suspicion on the other. In several, however (four), the glands on both sides of the neck were frankly tuberculous.

*Incidence of Human and Bovine Infections.*

As has already been indicated examination of the series of tonsils under discussion was at first limited to histological study. In June, 1927, work relating to the relative incidence of human and bovine tuberculosis generally in the children of Melbourne, was instituted, and all possibly tuberculous tonsils were thenceforward studied with the object of determining the type of infecting tubercle bacillus, human or bovine.

Table II shows that tuberculosis was communicated to guinea-pigs from tonsils thereby shown to be tuberculous in eight instances. In one, although tubercle bacilli were demonstrated in the lesions in the animal, the subsequent cultures failed and the type of the infecting *Bacillus tuberculosis* remained undetermined. Of the remaining seven, four yielded the bovine type of bacillus and three the human type, the differentiation being based on cultural characters as observed on Dorset's plain and glycerin egg media and virulence tests in rabbits in the manner detailed in another paper<sup>(2)</sup> dealing with human and bovine infections.

The proportion of four bovine to three human infections in this small series of seven tuberculous tonsils is probably not a true index of the relative frequency of the two types of tubercle bacillus in tuberculosis of the tonsil. The findings in a series of 24 tuberculous cervical glands showed 17 bovine and seven human infections, and these figures probably represent the relative incidence in tonsillar infection more correctly.

*Prima facie*, the types might be expected to correspond in tonsils and cervical glands in the same child, and such was the case in every one in whom an opportunity was afforded to make the comparison. Bovine bacilli were recovered from the cervical glands in each of the four children recorded above as showing a bovine tuberculous infection of the tonsil, and in the only one of the three with the human type of *Bacillus tuberculosis* in the tonsil from whom cervical gland material was received, the human bacillus was demonstrated in the glands.

In two of the three children in whom the human type of *Bacillus tuberculosis* was recovered from the tonsil, contact with adult pulmonary tuberculosis was definitely established. The third child, as far as could be ascertained, was not so exposed. In none of the four yielding bovine bacilli in the tonsil, was there any family tuberculosis or ascertainable contact with adult pulmonary tuberculosis.

In Table III the results of the investigation conducted in Melbourne regarding the occurrence of primary tuberculosis of the faecal tonsil in tuberculous cervical adenitis, are placed alongside those of other workers for comparison.

**GROUP B.**

In Group B are placed the tonsils of 46 children removed for simple hypertrophy, repeated attacks of tonsillitis, or glandular swelling which subsided after tonsillectomy and was regarded clinically as non-tuberculous. Histological examinations yielded no positive findings with respect to tuberculosis of the tonsil in this group, although it is possible, if not

TABLE III.  
Primary Tuberculosis of the Faecal Tonsil in Subjects of Tuberculous Cervical Adenitis.

Name.	Number Investigated.	Tonsils Tuberculous.
Carmichael, <sup>(8)</sup> 1910	50	7
Hurd and Wright, <sup>(4)</sup> 1909	12	9
Matthews, <sup>(7)</sup> 1910	8	5
Mitchell, <sup>(4)</sup> 1917—		
(a) Histological method	106	41
(b) Animal inoculation	92	20
Webster, 1927-1929—		
(a) Histological method	86	37
(b) Animal inoculation	16	8

probable, that had complete histological study by means of serial sections through the entire tonsil been practicable, a small proportion of the tonsils in this group would have been shown to be tuberculous. No animal tests were employed in this group. Some of the recorded findings of other workers with respect to the occurrence of tuberculosis of the tonsils in individuals presenting no clinical evidence of tuberculosis in the cervical glands or elsewhere, are recorded in Table IV.

TABLE IV.  
Results of Investigations regarding Tuberculosis of the Tonsil in persons presenting no Clinical Evidence of Tuberculosis.

Name.	Number Investigated.	Tonsils Tuberculous.
Kingsford, <sup>(8)</sup> 1904	2	0
Latham, <sup>(9)</sup> 1900	45	7
Dieulafoy, <sup>(10)</sup> 1895	(inoculation) 61	8 (by inoculation)
Mitchell, <sup>(4)</sup> 1917	100	9 (histologically) 9 (by inoculation) bovine 3 human 2
Mitchell, <sup>(11)</sup> 1914	90	6 (histologically) 9 (by inoculation) bovine 3 human 1
Diggle, <sup>(12)</sup> 1924	75	5 (histologically)

Irwin Moore<sup>(4)</sup> attributes the earliest recognition of primary latent tuberculosis of the faecal tonsils to Dieulafoy who in 1895 reported to the Paris Academy of Medicine the results of animal inoculation experiments with the tonsils of 61 patients in none of whom was there any clinical evidence of tuberculosis. Eight of the animals (13%) developed tuberculosis. Examination of the adenoids of 35 patients by animal inoculation yielded positive findings with respect to tuberculosis in seven (20%). Since that date other workers, notably A. Philp Mitchell, have confirmed the existence of primary tuberculosis of the faecal tonsil as a pathological entity and it is the peculiar and distinctive feature of this manifestation of tuberculosis of the tonsil that it is a pathological rather than a clinical entity. It is safe to assert that the condition under discussion is never to be detected by examination of the throat; it is equally safe to assert that when tuberculosis of the cervical glands is present it is very probable that the tonsils are similarly infected. It has been shown in this paper that one or other tonsil was tuberculous in 46.5% of children with tuberculous glands of the neck, but it is probable that this figure represents an under-estimate of the actual incidence of tuberculous infection of the tonsil. The histological examinations were by no means exhaustive, and a margin of ex-

perimental failure must be allowed whatever methods of investigation are employed.

The clinical application of the facts presented, which point to the tonsil as the atrium of infection in tuberculous cervical adenitis, is obvious. Treatment which effects the surgical removal of the affected glands of the neck and leaves the offending tonsil as a menace to the remaining glands, is surely inadequate. I submit that the rôle of the tonsil as the focus of infection in tuberculous cervical adenitis is scarcely to be questioned, and that the rational treatment of tuberculous glands of the neck involves the removal of the tonsils, faucial and pharyngeal, as an essential factor.

#### SUMMARY.

1. The results of an investigation regarding the incidence of tuberculosis in the tonsils of 132 children are presented.

2. Of 86 children exhibiting tuberculous cervical adenitis, 40 or 46.5% were shown to have tuberculous lesions in the tonsils.

3. Among 46 pairs of tonsils removed for simple hypertrophy or other cause apart from tuberculous cervical glands, no instance of tuberculosis of the tonsil was detected.

4. The value of histological diagnosis is discussed.

5. Emphasis is laid upon the fact that primary tuberculosis of the tonsil is seldom, if ever, apparent clinically.

6. The conclusion is drawn that tonsillectomy is clearly indicated in the treatment of tuberculous cervical adenitis.

#### REFERENCES.

- (1) R. M. Downes: "Diagnosis and Treatment of Tuberculous Cervical Glands", "Transactions of the Australasian Medical Congress (British Medical Association)", 1923, page 469 Supplement to THE MEDICAL JOURNAL OF AUSTRALIA, July 5, 1924.
- (2) R. Webster: "Tuberculosis in Childhood: The Incidence of Bovine Infection in Victoria", THE MEDICAL JOURNAL OF AUSTRALIA, March 5, 1932, page 315.
- (3) A. Philip Mitchell: "Primary Tuberculosis of the Faucial Tonsil in Children", *The Journal of Pathology and Bacteriology*, Volume XXI, 1917, page 218.
- (4) Irwin Moore: "The Tonsils and Adenoids and their Diseases", 1928, page 86.
- (5) E. S. Carmichael: *Proceedings of the Royal Society of Medicine (Section for Diseases of Children)*, 1910, Volume III, page 27.
- (6) Hurd and Wright: *New York Medical Record*, June 26, 1909, page 109.
- (7) Matthews: *Annals of Surgery*, 1910, Volume LII, page 753.
- (8) L. Kingsford: *The Lancet*, 1904, Volume I, page 89.
- (9) A. Latham: *The Lancet*, 1900, Volume II, page 1785.
- (10) G. Dieulafoy: *Bulletin de l'Académie de Médecine*, 1895, Volume XXXIII, page 473.
- (11) A. Philip Mitchell: "Report on the Infection of Children with the Bovine Tuberclerc Bacillus", *The British Medical Journal*, January 17, 1914, page 125.
- (12) F. H. Diggle: *The British Medical Journal*, 1924, Volume II, page 813.

#### STAMMERING, A NATIONAL TRAGEDY: A PLEA FOR FURTHER RESEARCH AND SCIENTIFIC TREATMENT.<sup>1</sup>

By T. GARNET LEARY, M.D. (Edinburgh), F.R.C.P.,  
Late Psycho-Therapist, Defence Department and  
Repatriation Department.

#### A Backward Glance.

THE mysterious bondage of stammering has enslaved men from the earliest time. By the Jews

<sup>1</sup> Read at a meeting of the School Group of the London County Council Medical Officers and Medical Officers of Health Society of England on September 3, 1931.

speech defects were regarded as afflictions equal to deafness and blindness. The prophet Isaiah includes in the blessings of the Isaianic Kingdom, relief for the stammerer: "The heart of the rash shall understand knowledge and the tongue of the stammerer shall be ready to speak fluently" (Isaiah, xii, 3). Herodotus, father of Greek history, tells us of a stammerer, Battos, who was recommended by the oracle to go south to Libya if he would get relief from his affliction.

The Romans regarded stammering as an external peculiarity like any other, such as squint or bandy-leggedness. The ancient writers display no recognition of the inner factors which constitute the complaint. (See Shakespeare: "As You Like It", *Rosalind*, Act III, Scene 2.) Research was at a standstill in the middle ages. Since the beginning of modern scientific research in the sixteenth century, various explanations of the cause of stammering have been given.

#### Current Misconceptions.

A vast amount of ignorance and misconception obtains, even in the medical profession, regarding the affliction. Small wonder, then, that a host of charlatans and quacks compete on the market with ready-made cure-alls. The writer in his younger days sought relief in vain from the vocal exercises and what not, prescribed by such "speech experts".

Elocutionists, physical culture instructors and others profess a complete understanding of the matter, nor are there wanting correspondence lessons and treatment by electrical vibrations.

The pecuniary loss over such transactions is to the patient the least important matter; infinitely worse are the psychological effects. The diagnosis, if any, which is given, is in most cases false; an insight into the component elements of the problem is conspicuously absent, and the disillusioned sufferer feels that his case is hopeless. Members of the medical profession can perform a great service by placing treatment in the hands of a skilled psychological practitioner; for the relief of stammering belongs to the realm of psychiatry. The claim of "speech experts" to competency is untenable, because stammering is not a speech defect at all, but a defect of the mind, a disunity in the inner recesses of the soul or personality (mal-adjustment of personality to environment).

#### Inadequacy of Corrective Measures Based on Symptoms Only.

It is not denied that in some cases elocutionary or physical exercises have proved of some benefit. Stammering may lead to faults of breathing and articulation, and these faults may be corrected with benefit. Any beneficial effect would be more apparent in the milder cases, although it does not follow that, with failure in treatment, milder cases would not be aggravated. The point is that such methods of treatment attempt to deal with the symptoms and not with the cause, and their success can thus at least be limited. Any success results accidentally, as it were, from the psychic fact of

the patient's increased confidence while under the personal influence of the instructor. There are cases of defective articulation and hesitancy in speech which may yield to these methods, but these are not cases of stammering. The invariable mark of stammering is the presence of the psychosis of dread or fear. The stammerer's speech organs, breathing muscles, and bodily physique, are in no way physically different from those of a normal person; there is no organic defect. Unfortunately, surgical operations on throat and nose have not today even passed entirely out of date. What is abnormal is the content of the stammerer's mind—this all-important mental content and conflict is a field of most peculiar complexity.

The success of the corrective measures referred to is generally short-lived, and the patient soon relapses into his old condition or suffers worse than before. The fact of the matter is that these methods mostly fail altogether, and do far more harm than good, because of an almost total lack of understanding of the internal conditions of which external symptoms are but the expression.

Innumerable are the tales told by stammerers of elocutionary exercises, electrical contrivances, practice of "tongue twisters", muscular drill and breathing exercises, with the same barren result. The stammerer yearns for someone who understands, but hope deferred maketh the heart sick.

Success in treating speech defects, such as lisping, does not mean success in treating stammering, because stammering is not a speech defect at all, but a psychic defect externalized in speech.

#### The Psychic Content of the Stammerer.

There is no need here to discriminate between stammering and stuttering; they are in essence one. No fact more significantly proves psychic abnormality than that a stammerer when alone can speak perfectly. There are but rare instances of a stammerer having trouble when alone.

What is the mysterious pathological change which takes place when the stammerer meets with the presence of others? There is no physical change in tongue or lips or larynx. It is obviously some psychological maladjustment of the personality to its environment. Whatever be the original cause or occasion of the stammerer, it is the experience of stammerers that the condition which ultimately arises is precisely the same for them all. The core of the condition is dread of speaking; the diversity of causes of stammering loses its significance because of the common problem which is presented. A psychic complex of profound ramifications is built up, consciously and subconsciously, around the central core. An inferiority complex develops or extends. There is a desire to conceal the defect. The stammerer feels unable to cope with the environment; normal activity is frustrated. He becomes a "misfit", morbid and self-centred.

Owing to the power of the subconscious mind, the psychic ramifications become very deeply seated. At a given moment of trial the combination of

memories and influences of failure may be overpowering. An attempt to exert the will accentuates the conflict.

The accommodation of people to the stammerer, and their kindness about his affliction, confirm and habituate the stammer. He fails most when he wishes to do best—tension is greatest then—but does well in triviality and banality, to the detriment of his personal repute. Often misunderstood, a prey to convenient dissimulation, his motives misinterpreted, his intelligence underrated, even his sanity questioned, a stammerer indeed finds his lot "is not a happy one"; these are some of the results of his enslavement to "the little hunter, Fear".

Stammering may take possession of his life, become more and more the silent companion, the implicit directive agency, determining the kind of life he leads and, maybe for the worse, his vocational lot. Repressions occur, with their spurious satisfactions. The ramifications of the inhibitory system may be beyond tracing.

The extent and importance of this psychic determination will, of course, vary widely in individual cases, but the picture we have indicated is for many cases not overdrawn.

#### The Standpoint of "Individualpsychologia".

It is believed by some exponents of the individual psychology of Adler that stammering is a defensive barrier set up by the patient against social reality. It is a weapon consciously forged by the psyche for protection from the claims of life. The patient suffered psychic reverses in his childhood which have left a permanent mark, and now, by the principle of compensation, has retired into a world of his own making in which he is a success. In this antisocial world he is a hero, a great man, a doer of imaginary deeds.

Stammering is the barrier which shuts out unpleasant social realities. Logically, it is said, the malady would result in dumbness, though the anti-social tendency is never carried to such an extreme.

The malady has its roots in some maladjustment of personality to environment in childhood. The child's dominance in his environment, or his social ease and power, were thwarted by parent or teacher; or he was in some way "below" a companion in deeds, repute or attributes. So was produced the stammer, his line of defence behind which he could live in a world of self where there would be no resistance to his domination. The individual psychologists thus find a cause for dread of speaking, this cause being an original anti-social predisposition towards life, or perhaps an unfortunate environment, a childhood conflict, and this conflict becomes accentuated as the years pass. It is consequently maintained by them that permanent relief will be gained by the patient with the discovery to him of the point where he first went wrong, and by the creation and unfolding of a new social self. A complete change in the stammerer's style of life is implicit. Relief from stammering would thus be effected by the most refined methods of psychiatry,

in which psycho-analysis might in cases play a helpful part. The reeducation of the stammerer is involved. Speech practice is considered unnecessary.

I profoundly respect the analysis of the individual psychology and apprehend the large elements of truth it contains. Yet I cannot agree with its uniform applicability to all cases. I cannot agree with its virtual presupposition of an affinity of psychological type among all who stammer. I have known stammerers on whom the individual psychology sheds a revealing light, but I have known stammerers of other types, some dull, some easy-going and unambitious, some extroverts and real social "mixers".

Stammerers vary most widely in interests, mental powers, sensibilities, temperament, heredity and environment. I consider that in many cases the attempt to discover the original childhood errors would be futile or unimportant. The only feature common to all stammerers is, in my opinion, the stammer itself. I would say that in most cases there is no disrupted personality except as caused by the affliction itself. Again, whatever be the original childhood faults of setting up barriers against reality, there is no doubt that many stammerers wish to break through the barrier in the wisdom of their growing years. They cannot do so simply because stammering has created its own problems and phobias; psycho-analysis back to the original faults will not necessarily help them.

The individual psychology does not deal adequately with imitation of a stammerer as one of the causes of stammering, nor are the causes heredity and shock explained. I believe that the central problem of treatment is stammering itself and the psychic conditions which are consequent on it (not antecedent to it).

Stammering, I believe, is the cause of psychic maladjustment, and not psychic maladjustment the underlying cause of stammering. Experience convinces me that practical expression work, among other measures, is necessary in the treatment of the complaint, only because of the enhanced psychic equilibrium which it generates. The confidence of the stammerer in his ability to speak has been sapped, and must be restored by the development of conscious power, by expression work which has been planned precisely for the cumulative restoration of the personality. I believe entirely that stammering and its problems are of a psychic nature. Stammering affords its own essential peculiar problem; that problem is not a derivative one. A fundamental reeducation of the patient fitting him for readaptation to environment is, however, generally necessary, for the effects of stammering are so diverse and complex.

#### Morphology of Speech.

Speech is only intelligible noise, and no animal other than man is capable of expressing its thoughts (if any) in words. Also, no vertebrate lower than the amphibians can produce laryngeal sounds. Birds, however, produce metrical sounds which are the forerunners of vowels, but even

"trained" birds can only make noises which appear to be reproductions of words used by man. Mammals have advanced a step, they can vary the sound to suit the emotion; for example, the growl, whine or bark of a dog, as indicative of different emotions. Man, however, is the only animal with a brain large enough to express thoughts in intelligible sounds.

#### Physiology of Speech.

The function of speech is a very complex one and involves the highest activities of the brain. To simplify the matter, various schemata, of very doubtful value, have been drawn up to represent the train of events which were believed to occur when intelligent speech was carried out. In the case of words, the meaning of the sounds is gained by a process of association with certain actions or objects. Much repetition is generally necessary in order to make the impression a permanent one. This is the process with nouns. With other parts of speech, such as adjectives *et cetera*, the meaning is acquired, after a stage of echolalia or parrot-like repetition, by the exercise of the developing mentality, so that they are not expressed intelligently till the second year of life.

As regards the effector side of speech, three neurones were thought to be involved: (i) The lower motor neurone—the cranial nerves and their nuclei (especially the eleventh nerve) supplying the speech musculature; (ii) the upper motor neurone—the cells of Betz in the motor cortex and the pyramidal tracts; (iii) a centre in the inferior frontal gyrus called Broca's area. This was supposed to guide and control the motor area in the complex movements of articulate speech. There is now little doubt that Broca's area is not the speech centre, and the fallacy of this belief has been pointed out by such eminent neurologists as Elliot Smith, H. Head, G. Holmes, J. K. Shellshear and Kinuier Wilson. Broca's area, in the light of our recent knowledge, is to be regarded as one of the speech centres, merely a part of a very extensive area of cerebral cortex which may be stimulated in the process of speech.

The following is one of the schemata evolved in an attempt to describe the train of events in speech:

1. *Ear*: Auditory centre: (a) auditory speech centre; (b) motor speech centre (Broca's), motor cortex, speech muscles.

2. *Eye*: Visual centre: (c) visual speech centre; (d) writing speech centre, motor cortex, arm muscles.

Injury or congenital defect at (a) produces word deafness—sensory aphasia; (b) produces impaired speech—motor aphasia; (c) produces word blindness—alexia; (d) produces inability to write—agraphia.

This scheme was advanced when it was thought that there was only one speech centre (Broca's). Clinical and pathological findings, however, have led to the abandonment of this view.

#### Localization of Speech Centres.

It is obvious that in intelligent speech any number of the millions of association cortical neurones may be called on to yield up their stored impressions. Thus, indirectly, every intercalatory

(connecting) cell in the visual area, acoustic area and sensory areas of protopathic, epicritic and proprioceptive (deep) sensibility, may become involved in some way and at some time in the function of speech. Definite localization of speech centres is therefore impossible (Burkhardt, Henry Head and Pierre Marie). This modern view refers the speech function to a wide area on the left side of the cerebral cortex, because gross macroscopical lesions producing aphasia are almost invariably situated on the left side (in right-handed persons). Marie includes in this area the whole of the temporal lobe, most of the parietal lobe, as far back as the angular gyrus, the island of Reil, and the lower frontal convolutions. This last includes Broca's area, which is therefore merely classed as an association area.

If, as is thought, the left cerebral hemisphere is the part mainly concerned with speech, it may be asked: "What is the part played by the right hemisphere, and what happens to impulses received on the right side of the brain?" We know that any part of one hemisphere is connected by commisural fibres through the *corpus callosum* with every other part of the opposite hemisphere. Hence, although we do not know the exact pathway of the fibres conveying speech impressions, it is not unreasonable to assume that those from the right side cross to the wide area before described in the left neopallium. This area on the left side of the brain is, of course, not entirely devoted to speech. It is really an extensive sensory and association area.

To summarize all this, it may be said that there is a widespread area on the left side of the cerebrum concerned with the function of speech, and it is not divided into compartments, or centres. This area has two great incoming pathways on each side—an auditory and a visual. Probably other sensations play an important part, too. There is a great outgoing pathway on either side to the motor areas (of Rolando), and these fibres on their way probably pass very close to Broca's area in the inferior frontal convolution.

#### Development of Speech.

At birth the child does not speak. Its utterances are of a purely reflex, animal-like character. This is because most of its cerebral neurones are in the embryonic neuroblastic state, and the association fibres have not commenced to myelinate. The gradual transformation of the child from a state of idiocy to one of intelligence has been carefully studied by Preyer (1890) and Wylie (1894). The first sounds uttered are vowel sounds—uttered unconsciously, and so without mental effort. Then follow the preliminaries to intelligent speech—babbling, crowing *et cetera*—till we reach the stage of echolalia, or parrot-like repetition of words. The first intelligent use of words begins in the second year, understanding of spoken words at the end of the first year.

The point to be stressed in considering the acquisition of speech is that it is only possible by

the development, *pari passu*, of the association or internuncial neurones, and the myelination of their axones, whereby, in some as yet mysterious way, they are enabled to store up visual, acoustic and other sensory impressions, and associate them with certain objects and actions, and so build up a train of simple reasoning and thought.

As education proceeds, more and more cerebral neurones become stimulated to receive and store impressions and ideas. Thus the more highly trained or civilized the individual, the more neurones are there converted from the neuroblastic to the mature functional stage. If these do not develop, or are injured, a state of idiocy or amentia results.

#### Correlation of the Development of Speech with the Neurology and Histology of the Cerebral Cortex.

As stated before, at birth the cortical neurones, especially those in the association areas, are in a non-functional neuroblastic state. It is known, too, that in development the neurones of the supragranular (or external) layer lag behind those of the infragranular layer. The association areas of the brain are the sites of the higher mental functions—of reason, thought, self-control, inhibition, memory, speech and original ideas. These areas consist of an enormous number of cortical association neurones, interposed between receptor and effector neurones. These association neurones are the physical storehouses of memory, speech, and of higher mentality generally.

#### The Histological Structure of the Cerebral Cortex.

The cerebral sensory cortex is composed of three more or less distinct layers of grey matter, separated from each other by medullated axones forming the outer and inner layers of Baillarger, which run parallel with the external surface. In the visual centre the outer layer of Baillarger is well marked and is called the *stria gennari*.

The infragranular layer is the first to develop, and shows remarkably little difference in thickness in all mammals. This layer is concerned with the instinctive and automatic activities of the animal, as distinct from the reasoned or inhibitive activities of behaviour. In man it is the seat of all of his animal-like characteristics—such as attending to his own wants, actions which require no education or experience for their fulfilment and which are directed to the preservation of the individual and the species. In my opinion, it is probable that speech (subject to a certain control from the supragranular cells) also involves these infragranular cells. The granular layer is a receptive stratum which develops later than the infragranular layer. It is most pronounced in receptive areas. The function of this layer is the reception and storing of sensory impressions. It plays a part in memory.

In higher mammals there commences to be laid a still more external layer of neurones, for the most part pyramidal in shape, and the cortical neuronic pathways become greatly increased in

number and complexity. This layer attains its greatest development in man, and is the seat of the highest cerebral function. Its thickness varies considerably in different individuals. With the development of this layer, elements of control over actions, and the memory of previous impressions and reactions, begin to influence the behaviour of the individual. As the supragranular layer does not develop till the second year of life, it follows that the acquisition and audible demonstrations of speech have, up till then, been purely reflex and eholallic.

The histological appearance of the supragranular and infragranular layers is much the same, except that, in the former, the neurones are mostly pyramidal, and, in the latter, pyriform in shape. The function of the two layers is, however, widely different.

#### Function of the Supragranular Cortex.

The view put forward by Golgi, and now generally accepted, is that all of the pyramidal cells in the cortex are effector in function, that is, they release nervous energy, in contradistinction to the receptor cells, which store it. Watson and Bolton, utilizing this theory, declare that the function of the cells of the supragranular layer would seem to be the release of nervous energy, which takes the form of inhibition and mental reaction, according to the individual's view of his environment. This is very important in stammering, and will be considered later. In the motor cortex, for instance, the giant pyramidal cells (of Betz) probably initiate and maintain tension or tone in the somatic musculature, this tone being regulated and coordinated by the lower cerebral centres, such as the *corpus striatum* and the cerebellum. (Tone is a postural or stretch reflex.)

Reasoning along the same lines, then, we may assume that the supragranular cells of the sensory cortex release nervous energy in the form of mental reaction and inhibition, and generally act as supervisors of the cells in the layers below. These supragranular neurones, the most highly and recently developed of all cells in the cortex, are the most delicate, and are the first to be affected in sleep, in shock, and by drugs (such as alcohol and the general anaesthetics). Thus the supragranular layer is the brain of inhibition, control and intelligence.

#### Stammering.

Stammering, in the light of what has been already considered, thus seems to concern the supragranular layer of the cortex. One of the most distressing of all mental afflictions, because the sufferer is so acutely aware of his condition, it does not seem to have had the careful study from a neurological and psychological aspect that its incidence merits.

#### Analysis of Stammering.

Stammering is not due to any defect in the mechanism on the receptor side of speech. The stammerer can understand the written or spoken

word. Nor is there any organic defect on the effector side of speech, as the sufferer can at times express himself with the utmost clarity. There is a defect on the effector side, however—a psychic defect—which prevents the sufferer from giving free vocal expression to his thoughts and ideas. This is really a subdivision of motor aphasia—except that the lesion is psychic instead of organic or congenital.

There is obviously some inhibition of the cells of the motor cortex which are used in speech. This inhibition, in bad cases, may radiate or spread over the whole Rolandic area, throwing all of the muscles into a state of rigidity, or excess tone (hypertonus).

Speech, I think, involves in the sensory cortex mainly the granular and infragranular layers, while the cells of the supragranular layer initiate and control the complex movements of speech. It also supplies the infragranular layer with ideas and words, although there is possibly a considerable storehouse of impressions in this stratum.

Just like many other nerve phenomena, by a process of facilitation, the mechanism of speech normally proceeds in a purely mechanical or automatic manner. Most of our words and phrases are stored up and can be produced at a moment's notice without thought or mental effort. In the stammerer this is not so. The cells of the supragranular cortex exert such an inhibitory influence over the lower neurones that he requires mental effort to set the mechanism of speech in action. Even when speech has commenced the "brake" exerted by the supragranular cells is so powerful that the words are jerked out and speech is incoordinated instead of flowing out in an easy, natural and effortless way. To give some backing to this opinion I would point to the fact that in alcoholic intoxication, and in the excitement, induction and recovery stages of general anaesthesia, the stammerer speaks as would a normal individual under similar circumstances.

The supragranular cells, exerting the inhibition, are the first to be affected. They are paralysed, the lower cells are released from inhibition, and speech is carried on with a complete, sometimes offensive, absence of restraint—in fact just like speech of a normal person. This excessive inhibitory reaction to the environment becomes an obsession and will exert itself more and more strongly, unless the sufferer can be convinced, either by remedial methods or by his own reasoning, that he has no need to be afraid of a supposedly unfriendly and strange atmosphere. Suggestion or auto-suggestion is of great help in this regard.

I am convinced that the cause of this excessive inhibition is fear—fear of ridicule, of social contempt, of being regarded as outside the pale; fear—one of the most primitive and powerful of all the emotions—which is directed to the preservation of the individual. This breeds in time an inferiority complex, which intensifies the stammer, which in turn gives rise to greater self-consciousness. And so the vicious circle goes on.

As regards the primary cause of the defect—it must have had a beginning—before the individual

was old enough to have an inferiority complex, we can in many cases only conjecture. A timid nature (neuropathic diathesis), a shock, uncongenial environment in the home, wrong school or home atmosphere, all might cause a permanent derangement of function and lead to excessive reaction of the supragranular cells. A very intensive and skilled psycho-investigator might succeed in locating the cause in those persons who have stammered "as long as they can remember" (psychic trauma).

Once the cells are deranged and the individual is old enough to develop a feeling of inferiority (and young, timid children develop this very easily), the trouble goes on, creating a vicious circle, due mainly to this self-consciousness; as a rule, it intensifies every year.

I am fairly certain that stammering is not congenital, although perhaps, in the later stages of pregnancy, a severe shock to the mother might affect the foetus. This, however, is most unlikely, as the unborn child has undeveloped neurones, and is probably incapable of appreciating even the strongest emotion. Neither is stammering hereditary.

#### The Relief of Stammering.

I shall very briefly outline the methods which should be used in treatment.

The problem is the dissolution of the psychic core. Certain recesses of fear and misconception can usually be elicited by observation and questioning. Class treatment is desirable—the spirit of mutual help is pervasive and powerful; the all-important condition of complete absence of reserve is secured. A most necessary basis of the building-up process is that the stammerer makes no attempt whatever at concealment of any part of his affliction. For the first time in his life he will have found the understanding for which he has longed, the replacement of strain by ease, and an environment in which he has no fear. The resolution of the fear complex, a changed outlook on life, and the development of an agreeable method of speaking, will proceed in intimate interaction.

The feature of practical work is the manner of rhythmic speaking, which is insisted upon invariably. An element of this is the diminution of consonantal sound and tension, by speaking on open and full extended vowel sounds with a low pitched voice.

Stammerers commencing treatment are in much need of relaxation, and require this simple and most elemental way of speaking. Ease in transition from syllable to syllable is assisted by rhythmic speaking. The elementary rhythmic cadence is employed with most beneficial results. The patient discovers that, speaking in this way, stammering is impossible. This revelation, combined with the entire abandonment of reserve, produces an immense psychic result. The process may for a time be assisted by rhythmic movement of hands, arms or feet to harmonious stress and time.

Such is the distraught condition of the stammerer that it may be necessary to begin with the simple vowel sounds, proceeding to syllables, words and

word groups. Care is taken to develop psychic control. Rhythmic expression is then extended to many other forms of work, including conversation, descriptions, narration, using the telephone, shopping. At every stage attention may profitably be directed to any special difficulties. After an amount of practice the stammerer will feel a growing sense of strength and mastery, the long unuttered thoughts will be released from the subconscious, and the fear complex will begin to pass off.

The rhythmic cadence, with all contributory action, is employed uniformly in all intercourse by the patients among themselves, and soon extended to intercourse with strangers, either by one patient alone or in company with another who has lost self-consciousness.

The manner of speaking is, of course, at first very noticeable, and should be very full and deliberate. But as proficiency is gradually gained, a naturalizing process is begun and the rhythm toned down into a pleasant and agreeable way of speaking, but without detriment to its being a "safe and sure way". The natural flexibility of the manner is such that it can be extended to all kinds of speaking. The requisites are intelligent, self-reliant application and skilled direction. Far-reaching and beneficial results will be obtained in stilling the psychic conflict and with ease rendering expressive the personality.

Portion of the above-mentioned work will be done while the patient is in a condition of self-induced relaxation. The elimination of strain and tension throughout is a fundamental necessity. Treatment by suggestion will be important, but auto-suggestion is above all a *sine qua non*. This is procured after the confidence is established.

Subsequent measures for relief assist the patient towards control in his approaching readaptation to environment, so that when he returns to his social sphere he will find that the ease of many of his social contacts has already been provided for.

The manner of speaking will be perfected. The change will be noticeable to those who have known the stammerer, but the patient has been persuaded that his former manner of speaking was irrational and that his fear of people taking notice of the new manner, which has been rationally built up from first principles, is unwarrantable.

It is his best of all methods, and is quite agreeable and pleasant, marking an immense advancement. The patient must adhere to his precepts, and the humility of acceptance will be rewarded by the ever-increasing field of their application. Above all, a profound psychic change will have been effected.

The future history of the patient lies chiefly with himself, depending on the success with which he effects the passing-off of the old defective form of life, and its replacement by a socially happy fitness for life and a new outlook. Thus he will have reconstructed himself into freedom, and accomplished the integration of all that is most desirable in his personality.

THE NEED FOR A SCIENCE OF CLINICAL ANTHROPOLOGY.

By FRANK TRINCA, M.C., M.B., B.S. (Melb.),  
Melbourne.

THE letter of Dr. Ellery in THE MEDICAL JOURNAL OF AUSTRALIA of December 12, 1931, can be read as a plea for the revival of the Mackenzie ideal, which tends to be submerged rather than furthered by too confident dependence on the increasing technical facilities of medical science. In amplifying Dr. Ellery's remarks my motive is to suggest a constructive scheme by which such aspirations as he expresses may be practically furthered.

In the first place the practitioner who is a thinking biologist cannot but feel it an invidious responsibility in his daily task to be constantly called upon to interpret and remedy disease as, in the main, a departure from the normal laws of life, when but a tithe of such laws is known. To state a metaphor: The practitioner on graduation, impressed by the ingenuity and diversity of medical equipment, feels that surely here is a lathe to adjust the errors of the mechanism of life. But on shouldering clinical responsibility he encounters the process of living under clinical conditions with its wide-spread environmental reactions. In this are many aspects of life, with which, in their understanding and rectification, available technical equipment frequently fails to come to grips. Here is presented as a main problem the unfolding panorama of development in a life span, and over generations in which aftermaths of direct and indirect disease are sewn in the later superstructure from errors beyond recall at the foundation.

And so the clinician is confronted by a field in part beyond the reach of a technical equipment, which latter has the limitation in the main of dealing with life processes in detailed organs as they function at instants of time rather than in the composite constitutional aspect. In the face of these submerged aspects of constitutional life, the lathe of technical equipment, to continue the metaphor, tends at times to shrink as it were into no more than a spanner in its efficiency and scope for use. And it is at this point that the clinician realizes that, utilized alone, his equipment is in no measure commensurate with the intricacy of life, and medical science is called upon to coopt as well the anvils and hammers of common-sense knowledge of hygiene and clinical improvisation, born of the widest study of the individual and the scheme of environment in which life is set.

Using science as a spear point to this, the metaphorical lathe begins to assume a utility, and the individualism of experience is born and fostered.

The lack of correlation and pooling of resources in this obscure field of biological science is a long-felt want in organized medical science, born of ignorance of the nature of life.

In seeking a remedy the first difficulty is to define as a branch of medical science the outlook under discussion, which attempts to fashion the alphabet of technical equipment and standard medical education into the prose of a clinical system that can view life also as a whole. The second difficulty is to sort

out from the unsubstantiated clinical fancies promulgated in literature just that groundwork of basic clinical fact whose submission to organized experimentation would eliminate much abortive effort in the practice of our science.

That a branch of medical science to remedy this defect can be logically defined and adopted, appears obvious when the question is regarded from the following point of view.

Today the attributes and behaviorism of man, not the concern of any specific branch of biological science, are studied by the science of anthropology. Development of human traits and behaviour and reactions to environment are the special forte of this inquiry. In the daily round the findings of this field possess small direct applicability to medical science for the reason that it is the reaction of normal development to normal influences in environment which are in the main assessed by the science of anthropology.

An awakening of medical science is necessary to the fact that a science capable of studying, in a clinical or constitutional sense, interference with this normal development system, has yet to be devised and organized. In brief, the subscience of pathological or clinical anthropology is required to express a purposive aim in research, and assemble the as yet scattered and little correlated facts available in this sphere. It is for lack of this that medical science is lacking in complete self sufficiency, and speaks as a babel of tongues in the diverse personal individualism of its expression, while it often approaches what are at heart simple hygienic problems by indirect technical routes. For who can deny that, despite the value of tuberculin, whose discovery brought a crusade of a thousand physicians to Germany in 1890, the common sense establishment of baby health centres thirty years later must obviate much need for its use? Or that, in this situation is a moral widely applicable in the pursuit of our science, regarded as a means to heal, rather than as an interesting branch of science?

In his summarizing of the situation as an unbalanced worship of the test tube, Dr. Ellery senses, as do all, the need of a subbranch of medical science to codify, by a review of the pertinent findings of correlated technical and clinical science, the constitutional laws of life as a whole. And only then as a sequel can many deficiencies and upsets of balance of local organic disease be referred to an interference with the laws of development and evolution by the artificialities of civilization.

As a central formula in the working policy of clinical anthropology, there is presented for completion the as yet scantily filled vital equation in which the entire causative environmental factors operative throughout and responsible for life, must be charted on a basis that will expose the principles and laws by which the human economy operates, as a medium to construct from these, normally or abnormally, the effective structure and function of developing life. In keeping with this primary aim there is to be observed today in literature the rapidly increasing realization, by advancing clinical science, of the dependence of health on constitutional sufficiency and a normally balanced nutrition at the foundation of all, interference with

which determines apart from diverse dysfunctions the sequel of low resistance to infective disease and complications thereof. It is for want of harmonious views in this direction that the quack dietician preaches in the Press, doctrines that invite ill health in the "susceptible to nostrums", and that variance arises in expression of opinion among clinicians and academicians.

Posterity surely will assess with astonishment the vast industry applied today to the correction of end results of disease, in such essential institutes as the Rockefeller Institutes for example, with scant insight into simple constitutional laws, adherence to which obviates the development of many such pathological end results. In passing it may be said that science has reason up to a point to be grateful for the hygienic errors of mankind, such, for example, as vitamin deficiency born of civilized interference with diet. For it is the error that is disturbing otherwise effortless and symptomless function, giving rise in time to the symptoms and signs manifested as aberrant function and structure of disease, that provide the propositions of modern research.

Humanity, however, awaiting hygienic salvation, can be said to have done its duty sufficiently in this direction to entitle it to a more enthusiastic review of detailed findings, with the aim of arriving at greater knowledge of constitutional problems and principles which the assembling of such details allow of. In the pooling of latent resources of our profession, each who contributes to this end will attack a different aspect of the problem. But to ascend from generalities to the particular, it must be conceded that with the dependence of normal function on normal structure, the still controversial question as to what constitutes a balanced nutrition, cannot but be regarded as the basis of initial inquiry into this field. And if clinical anthropology needed a primary postulate, it could not get closer to essentials than to arrive at the true basis of nutrition, and see to the application of its findings by humanity.

A review of the study of the problem of diet in individuals of all ages in health and disease over years appears to point to the following conclusions. The ensuing discussion is conducted on a basis that exemplifies the widespread clinical implications that arise from non-conformance with requisite nutrition.

Not many thousand years ago primitive man, who was the forerunner of the white race, survived a glacial age of thousands of years. Today, study of clinical history places unnoticed chills as one of the commonest causes of often catastrophic ill health in mal-nutritional types.

The mounds of Europe show that, dietetically, primitive man depended for nutrition on a diet in the main of mammoth and with a scanty modicum of grain and nuts. Primitive man, depending on a major protein balance in diet, had not yet invented the farm.

As a vital mechanism he produced the main energy of life by the constant building into his tissues of protein which he just as constantly anabolized and katabolized, as the background of each step in development and energetic expression. Primitive man had not as yet introduced the baser alloy of excessive starch into his finer "metal". Knowing

nothing of the calorific estimation of food values or the more intricate and preponderant process of electrical life in the protein battery cells, he did not measure the bushel of this dual energetic organization behind life by the peck of calorific estimation, but left the problem to be solved by his palate and the balanced dietetic opportunity that then prevailed uncomplicated by civilized procedure. As then, so today in an age of starch surfeit it is the protein cell which in the main physiological conduct of life continually wastes and replaces a structure which, judged by its histological diversity and complexity in different organs, must conduct the main electro-chemical basis of life. But because the calorimeter is the sole weapon by which the physiologist can assess the conversion of food into energy and so life, the intricate metabolism of the protein cell has its status obscured by menial energetic tasks performed by the accessory and structureless starch and fat cell. It is the electro-chemically as well as thermically governed lipoid and protein cell in mind and muscle which at the apex of metabolism produces the technical performances of life, and can where mind is concerned, in its ascendancy, conceive a conception like Hamlet without "rise of temperature or liberation of detectable  $\text{CO}_2$ " (Bayliss's "Principles of General Physiology"). On clinical analysis on such a basis there seems little doubt that the most harmful doctrine promulgated in the present generation was that of Chittenden and his thesis of the minimum diet. Submitting a group of healthy students to semi-starvation for three months with no ill results, this investigator produced the star turn of the physiological exponent of that time. Clinically he overlooked a basic fact that demands recognition in clinical assessment of this experiment. The clinician knows from the fact that three-quarters of the thyroid can be removed, that the kidney uses only half a million of its 2,000,000 tubules at once, and that the liver provides for the corroborate, so in all organs *pro rata* there exists a 75% reserve built up over twenty years in the students and drawn on by them in the three months' experiment.

It is the clinician who sees the individuals who have unconsciously conducted this experiment over years or from childhood, with lack of individuality, pasty skins, effort syndromes, viscerotopes, contracted pelvis, nervous and organic dysfunction, abnormal lymphatic structure, and low resistance to self inflicted diseases derived from the flora of the alimentary and respiratory tracts. Situations, one and all are these, so prevalent in the "toast and tea breakfast", "husband away lunch" and "too tired to eat at the evening meal" types. Again in these types is seen the replacement of parenchyma by excessive interstitial tissue especially of arterial type in middle life with premature non-toxic arteriosclerosis. It is the thyroid of this type submitted to environmental strain or toxic burdens that becomes at first functionally abnormal and enlarged, and later structurally goitrous.

The nervous breakdown type in effect is to be regarded as reduced by inadequate conformance with requisite hygiene, to the 25% or thereabouts of organic reserve. And having in mind the potentiality of building such reserves up to as near as, but often far

short of, the 100% standard as possible, provides the clinician with a policy in revealing what is as much an "organothenic" as neurasthenic condition. So can an initial entry be made in the vital equation already mentioned, completion of which, in all implications of life, is the central among many offshoot formulae of clinical anthropology.

That the ground so far covered is contentious and conflicts with tradition, gouty and otherwise, is seen in many directions. As accessory to this situation the public at large last year could read on the opening pages of the evening Press two diatribes on the virtues of meatless diet, but they missed the coincidental fact that both exponents of this cult, one in Australia and one in America, confounded their adherents by dying suddenly in the same year in their prime.

The situation becomes of national import when Sir Arbuthnot Lane lectures with authority to the schoolgirls of England and in the public Press on the iniquity and "coarsening" effect of what is merely a protein sufficient diet. On the lighter side, revision of such false traditions is not made easier by the suggestibility of the proverb that "bread is the staff of life", and again it may be said without irreverence that of the opening line of the "Lord's Prayer".

And so, in review, the situation is seen of the too enthusiastic technician and his calorimeter surveying the trees without the forest, and misapplying much effort in attempts to bolster them up and prevent their warping, without directing his attack to the landslide affecting them. The medley of facts remaining to be sorted by clinical science is indirectly evidenced by the metaphor and scientific flight of ideas necessary to encompass them. Any situation that requires such methods is long overdue in its systematization. Science prefers facts to parables, yet the parable is the initial generalization that scents the new truth.

One other question among many such calls for a mention.

Biological science depends for its technical weapons in part on the science of physics in enumerating natural law which can be applied as a key to interpret the details of life. Of recent years physics has forged a new weapon directed to the understanding of cosmic law and "life" in inanimate matter. Biology limiting too much its researches to the confines of the human make-up, leaves it to the physicist turned philosopher, such as Jeans, Lodge and Eddington, to speak with contemporary authority as to the nature of the higher life in matter, which has intruded into the realm of simpler matter and energy.

The biologist concentrating on the details of self-contained life in the living form surely has been swept aside in one of the main objectives of his task. While again the leaders in sociological science wonder why they knock in vain at the doors of biological inquiry for a lead as to the nature of the trends behind social and economic life. Simply stated, biology has no message for the sociologist, and the latter admits with resignation that his maxims and laws are as yet built on unsubstantiality and are of greatly reduced value to humanity.

The day has come when the biologist already trained in part for the task, must turn physicist, and exploit

this new field which exposes the completed nature of the environment in which life is set, and find the originative relationship of life to its newly revealed setting. This is not a field for the rank and file of our profession as a whole. It is selectively one for those interested, who by ventures into fields comparable with those of Darwin into the field of geology, may lead to enumeration of principles of eugenics that can be understood and applied as were Darwin's, without the latter's geological experience.

The field surveyed has finally its ethical considerations and commitments in the future.

The first weapon of self preservation and advancement of our science to knowledge and the successful fight against the medical impostor will be in filling in the gaps in our armamentarium in regard to problems of constitutional health in the so-called "chronics" on which the quack battens. This discontented and critical flotsam and jetsam are often in reality civilized deficients and aberrants, organic as well as functional. The public may well remain confused at the lack of inspiration in this branch of medicine. They cannot understand the anomaly of the frequent failure of our best meant efforts in this field, as compared with success in others, and tend to judge our science by the weakest links in the chain. An end should be made to stigmatizing the search for the truth in this field as "unorthodox", even when it is based on the criterion that fact must precede hypothesis demanding in turn experiment, confirmation of which giving rise to theory, and a working formula of acceptable if not accepted law. What is needed is a discrimination of the type exercised by Sir James Mackenzie who, though a major pioneer in our technical arm, found the inspiration for such in his survey of probably the best clinical record of patients ever assembled as regards their clinical anthropological progress over two generations. In this field the investigator must discriminate in his association of ideas between misleading analogy and proof of connexion by substantial agreement. Such a distinction is exhibited in the reasoning of Darwin who, not having seen a coral reef, derived his accepted thesis of their origin by discerning in the study of the fossils in the cliffs of South America the other half truth in the fact that land surfaces are submerged over geological time, and the coral growth extends in adaptation to this movement.

On such a principle combine the fractional truths firstly of organic reserves exposed by thyroid removal, and secondly of the true basis of mal-nutritional turnover maintaining organic reserves as exhibited in the study of the underfed, and one basis of neurasthenic defects is exposed and a policy of restoration provided.

The clinical field is thus as productive of specific fact as is the laboratory. The facts are obscurer, more federal in their implication in life, and demand a definitive system for their analysis. Many attempts have been made to build up such a system that can sift facts as to the nature of life from philosophy. A lead by Dr. Ellery in organizing a group of those interested and who have material to contribute to this end may succeed in leading from small beginnings to much needed achievement in this direction.

## Reports of Cases.

### SOME UNUSUAL PELVIC CONDITIONS.

By HERBERT THROSBY, M.B. (Sydney), F.R.A.C.S.,  
Honorary Gynaecologist, Royal North Shore Hospital  
of Sydney,

AND  
P. E. WALTON SMITH, M.B. (Sydney), M.R.C.P. (London),  
Honorary Pathologist, Royal North Shore  
Hospital of Sydney.

THE following cases are chosen to illustrate how often one can be mistaken in clinical diagnosis and how necessary is a biopsy.

It is an old adage in medicine that more is learned by mistakes than by successes, and the account of the subsequent cases points to the accuracy of the saying.

#### Case I.

A maiden lady, aged sixty years, was seen by one of us (H.T.) in consultation with Dr. John Harris. Her health had always been moderately good, but for the last ten years she had noticed a hard tumour of the abdomen, which had been painless, and the presence of which she had kept secret from her friends and relatives. During the six weeks previous to seeking advice the tumour had rapidly increased in size, and her general health had suffered also. She had lost much weight and strength, though she had little or no abdominal pain. On examination the patient was very thin, with a drawn, anxious facies. She had a pulse rate of over 100 and a somewhat hurried respiratory rate. The abdomen was occupied by a large tumour the size of an eight months' pregnancy. It felt very hard and nodulated, and there was, as well, obvious free fluid in the abdomen. Dr. Harris thought there was some pleural fluid at the base of the right lung. Considering her general condition, the free abdominal fluid, the rather rapid respiration, and the history of the rapid increase in size of the tumour, we decided that to operate would entail a very serious risk, and a grave prognosis was given. We thought that the probable diagnosis was a large myoma of the uterus undergoing rapid malignant change and that the condition was a hopeless one.

It was surprising some two weeks later to hear from Dr. Harris that the general condition of the patient had improved considerably, and when she was seen again, this improvement was certainly marked. The signs of fluid at the base of the lung had disappeared, the respiration and pulse had improved, and the fluid in the abdomen was evidently less. The patient and relatives asked that something further should be done, and it was decided to explore the abdomen, though, in view of the history of rapid increase in size of the tumour, it was still thought that it was malignant. The abdomen was consequently opened below the umbilicus and the tumour, as far as possible, explored. This was somewhat difficult, owing to its large size, and it was impossible accurately to define its connexions and relations. It felt very hard to the touch, with softer areas over its surface which were obviously cystic. The appearance of the exposed surface was pinkish in colour, and looked like a rapidly growing tumour, possibly sarcomatous. There was some free straw-coloured fluid in the peritoneal cavity, but no blood. The tumour appeared to be rigidly anchored to the pelvis and abdomen, and it was considered to be worse than useless to attempt to remove it. A piece of the tumour was removed for examination and the abdomen was closed. A hopeless prognosis was given.

The pathological report was a still further surprise. Sections showed the tumour to be composed almost entirely of fibrous tissue with areas of degeneration scattered through it. There was no evidence of malignant change.

The fact that the sections showed no sign of malignant disease made it necessary to reconsider the diagnosis and

the unfavourable prognosis given. The patient and relatives were agreeable that some attempt should be made to remove the tumour. It was decided to do this, though the chances of being successful seemed slight. Accordingly, with Dr. Harris's assistance, the abdomen was opened by an incision from the xiphoid cartilage to the pubes. There were some slight omental adhesions to the tumour from the previous section, and after these were separated the connexions of the tumour were explored.

It was found that the tumour was attached to the posterior abdominal wall and posterior pelvic wall by a rather broad band of adhesion which turned out to be formed by parietal peritoneum. This was ligatured in successive portions and divided, care being taken to keep close to the posterior aspect of the tumour. The removal thus turned out to be much easier than was expected. It was apparent that the tumour was not connected with the uterus, which was seen to be the seat of several small subserous myomata and was removed, together with ovaries and tubes. The tumour weighed 5.4 kilograms (twelve pounds) and was hard and solid to the touch, except where cystic degeneration had occurred. The patient recovered without any alarming symptoms, and one year afterwards was in quite good health.

Ewing describes connective tissue growths, such as lipoma, fibroma and fibromyoma, as occurring in the lateral retroperitoneal region, either above or below the kidney or extending into the pelvis. This tumour was a pure fibroma and extended, as described, into the pelvis.

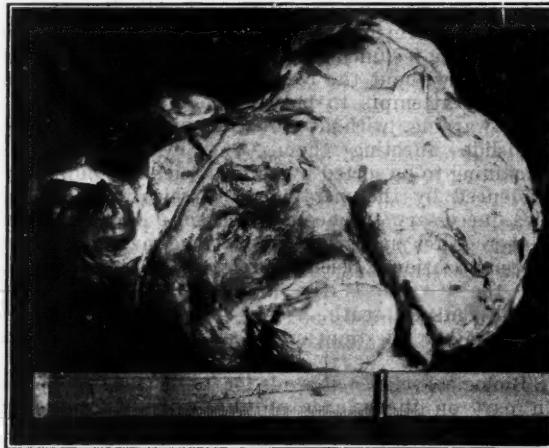


FIGURE I.  
Retroperitoneal fibroma.

#### Comment.

That the diagnosis was at fault was only too evident, though possibly one might be pardoned for a mistake made under such clinical circumstances. First, the general condition of the patient, cachexia, loss of weight, fluid in the abdomen and presence of a large, rapidly growing tumour, made the presence of malignant change in a previously benign growth almost certain. Secondly, at the first operation, one might have made a larger incision and so more fully have explored the connexions of the tumour. Still, it was so moulded into the pelvis and abdomen that proper exploration with a subumbilical incision was impossible and, as it subsequently turned out, only incision from the xiphoid to the pubes was sufficiently large to allow the tumour's connexions in the abdomen and pelvis to be determined.

Then again, one would have possibly expected blood-stained abdominal fluid in a rapidly growing tumour, whereas the fluid found was a light straw colour. This, however, is not a very important point in diagnosis, as clear fluid is often found in malignant abdominal tumours.

## Case II.

C.D.F., aged eighteen years, a milliner, was seen by one of us (H.T.) with Dr. A. C. Burstall. She complained of severe abdominal pain which had been present for one week. She had had pneumonia twice when young and had undergone tonsillectomy one month before. Menstruation began at fourteen years, was always regular, and lasted four or five days. No menorrhagia or leucorrhœa was present. The illness began with sudden onset of pain one week before. The pain was stabbing, and at first was continuous, but the last day or two was intermittent.

The patient looked very pale and ill, her pulse was rather rapid, and she had a temperature of 38.3° C. (101° F.). There was a palpable, hard, tender mass in the left iliac fossa with some rigidity of the left rectus muscle. *Per rectum*, the mass felt rather hard and was very tender to touch. No vaginal examination was made. A diagnosis of twisted ovarian cyst was made and the patient sent to hospital.

On opening the abdomen below the umbilicus, a large solid tumour of the right ovary was found and delivered. There was no torsion of the pedicle of the tumour, but it had ruptured in several places and the pelvis contained a good deal of fresh and altered blood. As the appearance of the tumour was distinctly suspicious, the uterus, tubes and the remaining ovary were also removed.

**Histology.**—The basis of the tumour of the right ovary is an epithelial cell of embryonic type; there are numerous small indifferent cells; other cells are larger, possessing hyperchromatic nuclei and showing many mitotic figures. The cells are arranged in columns or irregular masses. There are also to be seen many giant cells, some of which are exceptionally large multinucleated syncytium-like masses with acidophile and vacuolated cytoplasm. In places lumina are present, which, however, mostly contain blood, and the appearance is that of a peripheral rather than a true alveolar formation; some of the spaces are quite large and are only partially surrounded by the tumour cells.

A remarkable feature is the extreme vascularity of the growth. Very many thin-walled blood spaces are present amongst the cells, and in some areas no tumour cells are visible. Only these immature vessels appear, so that the structure resembles that of a haemangioma.

Other noticeable features are the presence of extensive haemorrhages, small and large deposits of fibrin, areas of necrosis and collections of inflammatory cells.

**Classification.**—It is evident that this is a malignant epithelial new growth, but it cannot be classified as one of the usual carcinomas of the ovary. The type of cell and other features in the growth suggest that it is embryonal in nature, either (i) a simple embryoma or (ii) a teratoma in which (as far as can be made out) the growth of all but the epithelial element has been suppressed. Ewing writes:

The demonstration that one element of an ovarian teratoma may suppress the others raises the question how far the apparently simple tumours of the ovary may prove to be of teratomatous origin.<sup>10</sup>

The presence of the large syncytium-like masses and groups of cells which might possibly be interpreted as Langhans's cells, suggested chorioma, but it is probable that the large masses have developed from the tumour cells themselves and are not true syncytial cells.

**Etiology.**—The origin of the growth may be from misplaced and embryonic cells or from aberrant trophoblast accidentally included in the ovary, the other possible source being the sex cell (ovum) of the ovary itself.

Professor Welsh favours a teratomatous origin for the growth. With regard to the age of the patient, it is interesting to note: "It is probable that both dermoids and teratomas arise chiefly in young adults, especially about the twentieth year" (Kroemer).<sup>10</sup> The left ovary was also examined microscopically. It showed a large *corpus luteum* and inflammatory changes, intense congestion with haemorrhages and formation of granulation tissue near the surface, but no evidence of malignant disease.

The convalescence was smooth, and for eighteen months there was no sign of recurrence, but Dr. Burstall now reports (October 6, 1931) that there are evident abdominal signs of the tumour having recurred.

## Comment.

A malignant epithelial new growth in the ovary of a young subject is a rare condition. A form of solid carcinoma is described, in which both ovaries are involved. Sarcoma of the ovary is commoner and is found in young women and even in girls before puberty.

The diagnosis of a twisted ovarian tumour was again wrong, though clinically the condition was very similar to torsion of an ovarian cyst or tumour. Thus the sudden onset of symptoms, the character of the pain, and the presence of a tender tumour in the lower part of the abdomen, and also the age of the patient seemed to point to this condition. Also the rise of temperature and pulse rate often occurs in such cases. The marked pallor of the skin and mucous membranes was puzzling, and though ectopic gestation was considered, it was dismissed, owing to the menstrual history being normal. The pallor was accounted for by the rather large quantity of blood in the abdomen, due to the rupture in several places of the capsule of the growth. Had this rupture not occurred previous to operation, the prognosis would have conceivably been better, as the malignant cells were almost certainly scattered over the peritoneum. In this connexion, Mr. Herbert Schlink states that he saw a case of carcinoma of the ovary removed with the capsule intact and there had been no recurrence over a period of years.

## Case III.

G.L., aged thirty-four years, single, complained of vaginal haemorrhage for two years. Previous to this, menstruation had been regular and normal. Bleeding had gradually increased in duration and amount, and often continued for five weeks on end. The patient also complained of sacral backache and of pain between the shoulders, especially during menstruation. In fact, latterly, dysmenorrhœa had been a prominent symptom.

The patient was pallid from loss of blood, and her blood count showed only 3,090,000 red blood cells per cubic millimetre, with a haemoglobin value of 35% and a colour index of 0.6.

She was examined under anaesthesia and the uterus was found to be retroverted, irregular in shape and replaceable only with difficulty. It was thought to be myomatous and was removed by subtotal hysterectomy, one ovary being left. The convalescence was normal.

Macroscopical examination revealed a uterus enlarged to the size of that of a three months' pregnancy; the surface was irregular, being studded with numerous small elevations; on making a longitudinal section of the mass, a honeycomb appearance was noted throughout, firm strands enclosing a softer tissue. The growth was considered to be a fibromyoma undergoing degenerative changes.

Microscopical examination revealed the presence of collections of gland acini in a cellular stroma surrounded by bundles of non-striped muscle in which there was a certain amount of fibrous overgrowth. The glands and stroma typically resembled those of ordinary uterine mucosa. Many of the alveoli were small, others showed varying degrees of cystic dilatation. The cells of the small acini were of high columnar type, those of the large varied from columnar to cubical or flattened cells, according to the amount of dilatation present. The cystic spaces contained altered blood, leucocytes and a few swollen epithelial cells; there were well-formed capillaries in the stroma. There was no evidence of any carcinomatous change in the gland tissue. These histological features can be noted in the accompanying illustrations.

It is interesting to examine a stained section with the naked eye. The endometrial areas are easily picked out, the glandular tissue standing out in marked contrast to the compact muscle strands; there appears to be nearly as much endometrium as muscle. Some of the areas are of fair size, one rectangular mass measuring eleven by four millimetres.

There is a diffuse penetration by endometrial tissues of the uterine wall extending from the uterine mucosa well up to the serous covering of the uterus, so that the tumour is an example of the condition previously known as *adenomyoma diffusum*, but now named endometrioma or uterine endometriosis.

The glands retain more or less free communication with the surface glands; where this is interfered with, cystic formation results. They take part in the periodical changes associated with menstruation.

It is not uncommon to find small endometrial tumours in the wall of the uterus, but as far as the experience of one of us (P.E.W.S.) goes, the condition as here described is of rare occurrence. It is doubtful whether it should be classed as a true neoplasm or as a form of hyperplasia; the cause also is a matter of uncertainty. Ewing writes:

A Mullerian origin accounts most satisfactorily for the majority of uterine adenomyomas, especially for the submucous, interstitial, and diffuse varieties. Duplication of the duct, fetal budding of the epithelium, misplacement of islands of fetal mucosa, post-embryonal misplacement of gland tissue, and invasion of the myometrium by gland alveoli during inflammation have been observed or suggested as accounting for the origin of these tumours.<sup>(3)</sup>

The subject of endometrioma was discussed at the last Australasian Medical Congress in 1929.<sup>(4)</sup> Professor Welsh stated that "endometrial tissue arose from the mature endometrium. There was a progressive wandering through the wall of the uterus and then into the viscera. Another point was that the overgrowth and the new growth were due to repeated hormonal stimulus of normal mature tissue."

#### Comment.

This case probably could not have been correctly diagnosed, either before operation or even by macroscopical appearances. Certainly dysmenorrhœa was present, and this is always a prominent symptom in endometrioma. But dysmenorrhœa is also a common symptom in many pelvic conditions apart from endometrioma. The interesting and suggestive fact in this instance was that the dysmenorrhœa had been acquired, that is, pain at menstruation had not always been present and had only commenced two years previously.

The fact that practically the whole substance of the uterus was invaded by endometrial tissue would probably account for the dysmenorrhœa. In other words, it is conceivable that the whole uterus would become turgid by the distension of the alveoli at every menstruation, and consequently pain might be produced by distension and pressure.

#### Case IV.

A.J., aged fifty-four years, married, with seven children, the youngest seventeen, had two miscarriages, the last one being fifteen years ago. She was a patient of Dr. A. L. Ducker.

She complained of severe vaginal haemorrhage for one week. She had undergone curettage for a miscarriage fifteen years ago, and had been treated by one of us (H.T.) for menopausal haemorrhage six years ago, which cleared up. For the last six years her periods had been irregular, with occasional amenorrhœa for one or two months, but no haemorrhage occurred until five days before examination, when she had a severe flooding. This was continuous for three days and then ceased for a few hours, but recurred heavily. She was then sent to hospital with a diagnosis of bleeding polypus.

Her condition on admission was reported as being alarming. She was very pale and weak, and obviously was suffering from considerable loss of blood. She was a stout woman and, except for her pallor, looked healthy. Her circulatory and respiratory systems were normal, and the abdomen seemed normal, except for obesity. There was no palpable abdominal tumour. The blood examination revealed 2,800,000 red cells per cubic millimetre, a haemoglobin value of 57%, a colour index of 0.8, and 6,800 leucocytes per cubic millimetre.

On examination a sloughing polypus the size of a golf ball was seen protruding from the os. The vagina was

packed with antiseptic gauze and the patient given 100 cubic centimetres of citrated blood intravenously. She had another haemorrhage a few days afterwards, necessitating repacking of the vagina. She was then given ether by the open method, and the polypus was removed. A week later she was given a further 250 cubic centimetres of citrated blood intravenously.

The pathological report on the removed polypus (Walton Smith and Professor Welsh) stated that a myosarcoma of the small spindle-celled type had developed in the tumour, but that panhysterectomy should offer a good prognosis.

The general condition of the patient improved very much by the aid of rest and blood transfusions. Also her red blood cells increased to over four million per cubic millimetre.

The abdomen was opened below the umbilicus, but unfortunately it was found that many metastases were present over the peritoneum and intestines. She has had deep X ray therapy at another hospital, but I cannot think that any treatment will be of any benefit to her. The examination of a secondary nodule revealed a small spindle-celled type of sarcoma.

#### Comment.

The unusual features of this case are:

1. The sudden and severe haemorrhage from a polypus which, until the microscopical examination revealed its nature, was mistaken by me for an ordinary myomatous or adenomatous polypus protruding through the os of a middle-aged woman. The excessive amount of haemorrhage should have possibly put one on guard as to the nature of the tumour, as sarcomata usually in such a situation bleed more freely than a benign tumour. In this case also the biopsy of the tumour was invaluable as showing its nature and the probable prognosis.

2. One did not expect to find metastases in the abdominal cavity occurring so quickly and from such a comparatively small tumour. They were also very numerous and extended high up into the abdominal cavity. It is interesting to speculate in this case on the method of spread, whether by lymphatics or by the blood stream.

#### References.

- (1) James Ewing: "Neoplastic Diseases", 1928, page 664.
- (2) James Ewing: *Loco citato*, page 665.
- (3) James Ewing: *Loco citato*, page 231.
- (4) J. Burton Cleland: "Endometrioma", and discussion, "Transactions of the Australasian Medical Congress (British Medical Association)", Third Session, 1929, pages 99 and 108.

#### SEPTICÆMIA OF AURAL ORIGIN.

By DOUGLAS G. CARRUTHERS, M.B., Ch.M. (Sydney), Honorary Assistant Aural Surgeon, Sydney Hospital, Sydney; Honorary Consulting Ear, Nose and Throat Surgeon, Canterbury District Memorial Hospital.

L.L., a male, aged thirty-five years, when first seen on March 9, 1931, had double otorrhœa without any pain, of two weeks' duration. There had been no previous ear trouble. He had suffered for some years from a post-nasal muco-purulent discharge. The ear was treated in the usual way by the dry method and the use of drops; the left ear was completely dry and healed after three weeks, but the right ear was discharging more profusely than ever. There was, however, no pain nor mastoid tenderness.

On April 3 the patient reported that he had slight pain behind the right ear. Slight mastoid tenderness was detected. On April 8 he was admitted to hospital with increasing oedema over the right mastoid bone and generalized mastoid tenderness, profuse discharge, but very little pain. The temperature was then 37.8° C. (100° F.), the pulse rate was 120, and the respiration rate 20 per minute. Under general anaesthesia a simple mastoid operation was performed. There was no fistula, and there was no pus in the swelling overlying the mastoid. The antrum was exposed in its usual position and found to contain granulations and very little pus. Huge cells full of pus

were found at the mastoid tip, and when this was emptied, the lateral sinus was found exposed for about 25 millimetres (one inch) of its length; its wall was healthy, and there was no evidence of an extradural collection of pus.

On April 11 the patient's condition was good, the wound was clean, and the temperature was 36.9° C. (98.4° F.), the pulse rate was 80, and the respiration rate 20 per minute. By May 11 the wound had healed by granulation from the bottom, the tympanic membrane was healed, and there was no otorrhoea. The patient was discharged. He reported again on May 25; there had been a recurrence of pain and otorrhoea for two days. He was admitted to hospital with a temperature of 37.25° C. (99° F.), a pulse rate of 98, and a respiration rate of 20 per minute. There was a slight cough, but no signs were found in the chest. The mastoid wound was reopened and curetted down to the antrum, through which a Stacke's probe was passed into the middle ear. For several days after the operation the temperature varied between normal and 37.8° C. (100° F.), and the pulse rate was about 90 and the respiration rate 20 per minute. During this time the patient complained on and off of pain in the right side of the lower and upper jaws, which he thought was due to decayed teeth. By June 5, pains in the face and neck had become more acute; X ray examination of the teeth, sinuses and cranium revealed no abnormality, and no abnormality could be found in the nervous system. Later this day he had a rigor and his temperature rose to 38.9° C. (102° F.), his pulse rate to 125, and his respiration rate to 28 per minute. At this time non-haemolytic streptococci were cultured from the blood, and the leucocyte count was 26,720 per cubic millimetre. On this date the wound was curetted and a radical mastoid operation was performed; the sinus wall was inspected and found healthy; the tegmen was intact.

Next day the temperature reached 39.8° C. (103.6° F.). Examination revealed nothing fresh. Since the radical operation the pains in the teeth and jaws had disappeared.

On June 7 the fever again reached 39.8° C. (103.6° F.), and the patient's condition appeared worse. The lateral sinus was then further exposed above and below, and its wall incised; blood gushed freely from both ends, and the interior of the vessel appeared healthy, no clot being present. The wound was again lightly packed and left widely open. Next day the temperature reached 38.3° C. (101° F.), the patient was comfortable and the wound healthy. The number of leucocytes was then estimated at 22,200 per cubic millimetre; the neutrophile cells were in the proportion of 86%, and the lymphocytes 14%.

On June 9 he had a further rigor and his temperature reached 39.4° C. (103° F.). The lateral sinus was again opened and found healthy; further operating to tie or remove the jugular vein in the neck was considered unwise.

On June 10 it was reported from the Sydney Hospital Eye Department that there was slight blurring of the optic disks; this was not considered pathological, and there was no optic neuritis. The patient's blood was typed and a suitable donor obtained in readiness. The red blood cells numbered 4,770,000, and the white cells 17,280 per cubic millimetre. The haemoglobin percentage was 65 and the colour index 0.7. Of the leucocytes 80% were neutrophile cells and 19.3% lymphocytes. The temperature for the next four days ranged between 37.8° and 39.4° C. (100° and 103° F.). The patient complained of pain in the left side of the neck, behind the mastoid; a tender spot was noted in the region of the left mastoid emissary vein. At 4 p.m. on June 14 he had a rigor. The temperature rose to 40.3° C. (104.6° F.), the pulse rate to 130 and the respiration rate to 36 per minute. Non-haemolytic streptococci were cultured from the blood. At this time the red blood cells numbered 3,940,000, and the leucocytes 16,716 per cubic millimetre; neutrophile cells were in the proportion of 64% and lymphocytes 36%. The haemoglobin value was 60% and the colour index 0.7.

On June 15 streptococcal antiserum, in a dose of 0.6 cubic centimetre (ten minims), was injected subcutaneously as a desensitizing dose; this was followed by a prompt rise of temperature to 40° C. (104° F.); there was no other reaction.

On June 17 the temperature was 37.8° C. (100° F.); ten cubic centimetres of streptococcal antiserum were given; it was intended to repeat the dose on alternate days.

On June 20, after the second injection of serum, the morning temperature was 36.9° C. (98.4° F.), and the patient was very well. The red blood cells numbered 3,410,000 per cubic millimetre, and the leucocytes 8,720, of which 87% were neutrophile cells and 11% lymphocytes. The haemoglobin percentage was 47 and the colour index 0.6.

For a further period of five days, while the same doses of serum were being given, there were daily fluctuations of temperature up to 38.3° C. (101° F.). On June 25 the evening temperature was 36.9° C. (98.4° F.), the pulse rate was 100 and the respiration rate 20 per minute. The pain in the neck was gradually subsiding. The administration of serum was discontinued on June 25. The temperature remained normal until July 7, when there was an evening rise to 37.3° C. (99.2° F.). Pain and tenderness had almost gone from the neck.

On July 7 the patient had a rigor and the temperature rose to 39.4° C. (103° F.). The pain had recurred in the neck and extended towards both shoulders. Ten cubic centimetres of antiserum were given and repeated on alternate days.

After another week, during which the temperature fluctuated between 36.9° and 37.2° C. (98.4° and 99° F.), and the pulse rate between 80 and 90 per minute, the serum was again withheld. The patient at this time complained of transient delusions; he was rather sentimental, but slept well. Presumably, these were symptoms of exhaustion and toxæmia.

By July 30 the temperature had been constant at 36.9° C. (98.4° F.) for over a week; the patient was well, his mind becoming clearer and the wound rapidly healing. On August 8 he was discharged from hospital. By August 20 the wound had healed and there was only slight mucous discharge from the external auditory meatus. Hearing with the left ear was about 30% normal.

Since August several small sequestra have escaped, but the wound is now closed with a firm scar, the ear is barely moist, hearing is about 50%, and the patient is very well.

#### Comment.

This patient from the commencement suffered from acute coalescing mastoiditis of the painless type. This is a dangerous type of mastoid disease in that, owing to the absence of pain, the surgeon is likely to be misled as to the progress of the suppurative process in the temporal bone. A feature that always helps one to suspect mastoid disease in these cases is the persistence of a profuse discharge, greater than one might believe could come from the middle ear alone. I had expected from the commencement that this patient's mastoid would ultimately have to be operated on; the occurrence of swelling finally forced the issue. At operation the mastoid process was found to contain huge cells filled with pus and granular débris, the latter following in the course of the lateral sinus throughout the whole of its extent beneath the temporal bone, which in this location had been absorbed, leaving the sinus wall exposed in the affected mastoid cavity.

The wound was treated by the open method, and healing was complete in three weeks and the patient discharged from hospital. A few days later he was readmitted for observation; his temperature was then about 37.2° C. (99° F.) for several days, and he complained of slight earache. As this persisted, the mastoid was reopened. A worrying point subsequent to this operation was the severe pain which the patient referred to his teeth in the upper and lower jaws on the right side; the occurrence of bleeding from the gums further supported the teeth as the cause; nevertheless the persistent fever and the occurrence of a rigor with a rise of temperature to 38.9° C. (102° F.) on June 5 led me to suspect that the pain was due to some irritation of the fifth cranial nerve by a deeper suppurative process in the temporal bone than had been uncovered at operation. A positive blood culture on

this date determined the performance of a radical mastoid operation, and incision of the lateral sinus. There was, however, a free flow of blood from both ends of the vessel. Subsequently, the persistence of rigors and violent fluctuations of temperature, together with the persisting positive blood culture, led to further reopenings of the sinus, which was on each occasion found to have a healthy interior. It was significant, however, that the pains in the teeth disappeared with the performance of a radical mastoid operation and the opening of some deeper cells in the vicinity of the jugular bulb. The subsequent course of the disease was marked by a gradual failing of the patient's general condition with progressive secondary anaemia, the number of red blood cells falling from 4,770,000 per cubic millimetre on June 10 to 3,410,000 on June 20, with a corresponding diminution in the haemoglobin content. However, the proportion of polymorphonuclear leucocytes remained relatively high, and the patient's blood resistance appeared to be maintained.

"Radiostoleum" was prescribed in the hope of improving the patient's resistance, but with little or no improvement in the disease, although the general condition appeared to be better maintained; then on June 17 the administration of ten cubic centimetres of streptococcal antiserum (Burroughs, Wellcome and Company, Limited) for the first time brought the temperature to normal, and with the exception of a further rigor on July 3, when the temperature rose to 39.4° C. (103° F.), apparently the result of delay in removing the sodden dressings from the wound, it remained between normal and 37.2° C. (99° F.) until the patient was discharged from hospital on August 11. The wound has subsequently healed and there is about 50% of hearing at present.

A further puzzling feature was the occurrence on June 14 of pain in the left side of the neck behind the mastoid process of the good ear, with tenderness in the same region. This appeared during the subsequent days to become more severe whenever the patient was more ill, improving with remissions in the fever and finally disappearing when the temperature became normal. Its occurrence has been extremely difficult to explain; it made me at times suspect a developing meningitis or a possible thrombosis in the vein of that side; but this appeared hardly possible, and I now conclude that it was a toxic myositis such as is noted at times in septicæmia.

The only other point which has not really been cleared up is whether this patient had a primary mural thrombosis in the jugular bulb without occlusion of the lumen of the vein, or whether the condition was one of primary septicæmia. The doubt existed throughout the course of the disease. It now appears to have been wise, in the absence of definite evidence of thrombosis, to have avoided further extensive operation upon the jugular bulb which might have proved fatal in the patient's serious condition.

## Reviews.

### NERVOUS AND MENTAL DISEASES.

"NERVOUS AND MENTAL DISEASES", edited by Peter Bassoe, is a recent production in the "Practical Medicine Series".<sup>1</sup> It is a useful addition to the library of any neurologist or psychiatrist, and it certainly maintains the standard of previous numbers in the same series. Inevitably an attempt to concentrate the recent advances in psychiatry and neurology into a volume of 436 small pages must lose something in accuracy and in systematic arrangement. At first this apparently defective systematization is irksome; thus on three consecutive pages "The Differences Between American and British Psychiatry", "The Erythrocyte Sedimentation Test in Psychoses" and "Psychiatry in Relation to Criminals" are successively discussed. A later impression is one of admiration for the way in which so many

diverse subjects have been welded into some sort of continuity.

In some contributions, particularly those dealing with the cerebro-spinal fluid circulation, the results of investigations are interpreted in a manner with which it is doubtful whether the investigators would entirely agree. Frequently, however, elaborate investigations are neatly summarized, many, presumably, by the workers themselves. Sections dealing with the mental sequelæ of *encephalitis lethargica*, though brief, are singularly effective. Other sections, in which valuable subject matter is admirably summarized, are too numerous to mention. Isolation of the hormone of the adrenal cortex, regarded in the preface as the most significant event of the year, is scarcely confirmed in the text. It is doubtful whether the work recorded, in view of its importance, meets all the requirements of scientific investigation. G. L. Dreyfus and Karl Mayer, when dealing with the application of malarial treatment to multiple sclerosis, include amongst their observations that it is perfectly safe to inoculate non-syphilitic patients with malarial blood from meta-syphilitics. Although this view is commonly held academically, many must still prefer to convey malarial infection from meta-syphilitics to non-syphilitics through the medium of the mosquito. Illustrations throughout the volume, though necessarily few in number, are satisfactorily reproduced.

### EMBRYOLOGY.

PROFESSOR FRAZER's book is a very welcome addition to British text books of embryology.<sup>1</sup> Few, if any, are more competent than the author to write such a book.

The greatest difficulty experienced by the student of embryology is in the formation of accurate mental pictures of the various parts of the embryo and the correlation of these, one with another, at the various stages of development. In an attempt to help students in this respect, some authors provide tables of correlated development. The present author, however, attempts to achieve the same object by making use, as far as possible, of the regional method, which has been so successful in descriptive anatomy. He is to be congratulated on the success of his task. The reader is still presented with complete and connected accounts of the important systems.

The author has taken advantage of the opportunity to bring together certain new descriptions embodying the results of original investigations extending over a quarter of a century. Although, as the author says, these "are frequently not in accord with the usual descriptions", yet he has presented the results of his own experience, and the reader feels all the time that he is being brought in contact with actual facts as observed and recorded by an experienced investigator.

The author regrets the necessity of omitting much detail that it has been customary to include in a text book of embryology. Although, in a work devoted to human development, the absence of much comparative embryological morphology is not especially noticed, it seems unfortunate that space could not be found for the usual references to developmental abnormalities. No doubt there are many arguments in favour of confining the text entirely to the normal; but in writing a text book for medical students there seems to be some advantage in emphasizing as much as possible the practical utility of the subject.

The book is profusely illustrated with simple and, for the most part, original figures, and the publishers are to be complimented on the general elegance of the production. On the whole, the author is to be congratulated on the production of a work in which he makes his subject so easy to follow and understand, and which is such a source of information and inspiration to student and teacher alike.

<sup>1</sup> "Practical Medicine Series: Nervous and Mental Diseases"; Series 1930. Chicago: The Year Book Publishers. Crown 8vo., pp. 451. Price: \$2.25 net.

<sup>1</sup> "A Manual of Embryology, the Development of the Human Body", by J. E. Frazer, F.R.C.S.: 1931. London: Baillière, Tindall and Cox. Crown 4to, pp. 494, with illustrations. Price: 30s. net.

## The Medical Journal of Australia

SATURDAY, MARCH 12, 1932.

*All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.*

*References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.*

*Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.*

### THE SURGEON'S MACE.

ON Wednesday, February 17, 1932, in the presence of His Excellency the Lieutenant-Governor of Victoria and the Chancellor of the University of Melbourne, Mr. C. H. Fagge, sometime Vice-President of the Royal College of Surgeons of England, presented to the Royal Australasian College of Surgeons a mace as a gift from the members of the Council of the Royal College of Surgeons. The ceremony took place in the Wilson Hall of the University of Melbourne on the occasion of the annual meeting of the Royal Australasian College of Surgeons. Surgeons from every State in the Commonwealth were present, and every branch of the medical profession was represented. The proceedings might be described as those of a dignified pageant, the company as distinguished and the speeches as faultless. But impressive though the ceremony was, the significance of the gift for the present and for the future must overshadow the pageantry.

The Royal Australasian College of Surgeons is yet in its infancy. Most of the readers of this journal know the history of its birth. Its founders

were actuated by a desire to further the study of the science of surgery and to stimulate surgeons in Australia and New Zealand to seek the highest and to strive towards perfection in the art of surgery. They also sought to stem the tide of commercialism which is such an unhappy feature of modern life and which was invading surgical practice, and to guard the honour of surgeons that it might be like that of the perfect knight, *sans peur et sans reproche*. Initial mistakes were made, but to the credit of the College are the admission of error and the determination to put its house in order. The College is on the threshold of a new era in its career. The method of admission has been altered. Initiates are now required to be in possession of a higher surgical qualification, to produce evidence of proficiency in surgical work, and to conduct their practices on an ethical basis. The decision of the Council of the Royal College of Surgeons of England to present the Australasian College with a mace was made after due deliberation and inquiry. When Dr. H. B. Devine was in England recently, Lord Moynihan, the President of the Royal College of Surgeons of England, learned from him the history of the foundation of the Australasian College, and the late Neville Howse not only told the same story as Dr. Devine, but emphasized the need for closer union between English and Australasian surgery. It was originally intended that Lord Moynihan should come to Australia to make the presentation. This was found impossible, and Mr. Fagge has come. Those who listened to Mr. Fagge's words, were impressed by his sincerity and felt that a more fitting messenger could not have been chosen. Before presenting the mace, Mr. Fagge read a message of goodwill from the donors of the mace, and referred to it as an emblem of brotherly affection which should bind the two colleges together. The mace will be an inspiration to the fellows of the Royal Australasian College of Surgeons to make every effort to carry into effect the aims and objects of the College. It is, as Mr. Fagge said, "a kingly emblem richly wrought", and represents "a spirit of affection which has passed from mother country to her sons".

The gesture of the Royal College of Surgeons of England has a further significance for every prac-

titioner in Australasia. A speaker at the dinner given by the Council of the Victorian Branch of the British Medical Association at the time of the meeting of the Federal Committee, referred to a mace as "an instrument for making adhesions". Surgery is but one branch of medicine. Australians may be attracted by some of the newer and apparently more up to date and more direct methods of Continental and American medicine. They sometimes complain of the close conservatism of the Englishman, but the Englishman is true to his tradition. Australian medical practitioners must investigate new methods of practice, and if their investigation is based on the sound tradition of British medicine, they will make no false step. Sentiment is a stronger tie to the Old Country than any legal enactment or stated obligation, and moral worth founded on ancient and honourable tradition will produce results attainable in no other way.

### Current Comment.

#### THE PREVENTION OF MALARIA.

THE prevention of malaria has been a vexed problem through the centuries. Ross's epoch-making discovery of the insect vector of the disease, followed by Gorgas's notable achievement in making habitable the Panama Canal zone, drew attention to the value of drainage and other measures aimed at the extermination of the anopheline mosquito itself. But there are many places in which anti-anopheline measures, to be effective, would need to be carried out on such a large scale that they are impracticable for reasons of finance. There are many wild and semi-civilized places where the anopheline mosquito flourishes unchecked, where there is a constant source of infection in the untreated native peoples, and where, in consequence, malaria is rampant. Almost every white man proceeding to one such place, does so in the foreknowledge that, whether he wins a fortune or not, he will certainly acquire a malarial infection. It is perhaps unfortunate that people should accept their fate with such utter lack of emotion, and should regard a disabling illness merely as an incidental concomitant to existence in a malarious country; if the prospect of infection gave them greater perturbation, they would be more eager to undertake measures of personal prophylaxis, and thus provide a greater quantity of more suitable material for the study of a very important aspect of the malaria problem. Natives are not usually suitable subjects on whom to test the prophylactic value of drugs; for in the vast majority of instances they are already infected when

the experiment is commenced, and, perhaps, have become partially immune. It was not until the introduction of malarial therapy for general paralysis of the insane that the prophylactic value of quinine was satisfactorily investigated. As a result, it is now known that quinine is not a true prophylactic, in that its administration does not prevent infection; that is, it has no effect on the sporozoite. The value of quinine in prophylaxis is its effect of preventing the development of malarial paroxysms. The introduction a few years ago of "Plasmoquine" (N-diethylamino-isopentyl-8-amino-6-methoxy-quinoline, derived synthetically) gave new hope to investigators. Its value as an agent capable of destroying the sexual forms of the malaria parasite was soon demonstrated, and it now deservedly holds an assured place in the therapeutics of malaria. Numerous extravagant and some well considered statements have been made concerning its efficacy as a true prophylactic against malaria; that is, its specific action on the sporozoite. But British observers, with their customary caution, generally laudable, have not hastened to enter the field; the development of British opinion has consequently been slow. It is only quite recently that the results of carefully controlled experiments by S. P. James, W. D. Nicol and P. G. Shute have been published.<sup>1</sup> The object of their investigations was to ascertain whether any known preparation was of value as a prophylactic against malaria transmitted by the bite of the mosquito. In a series of eight experiments they found that "Plasmoquine" was effective; under similar conditions six other preparations proved valueless. They repeated their experiments with "Plasmoquine" at the Horton Mental Hospital, Epsom, in a further series of cases, with similar satisfactory results. At the same time Nicol submitted to a test of the efficiency of the drug as a prophylactic against benign tertian infection, and Shute against malignant tertian; neither contracted malaria. James and nine medical students submitted to a confirmatory test. Each took one dose of 0.02 grammes of "Plasmoquine" on the first day; on the second day three doses of 0.02 grammes were taken, and each subject was bitten by infected mosquitoes. The administration of 0.02 grammes three times a day was continued for the next five days. The volunteers were kept under observation for 27 days. In no instance was there any clinical or protozoological evidence of infection. At the same time all the patients used as controls suffered definite malarial paroxysms despite that one of them had been given quinine in prophylactic doses before being bitten and for eight days thereafter. There can be no doubt that sporozoites were introduced into the blood of each volunteer; for it was shown that each had been bitten by at least one mosquito harbouring live sporozoites in its salivary glands.

James, Nicol and Shute are convinced that "Plasmoquine" in much smaller doses would be of equal value. They remark that the next step should be to ascertain whether the preparation is effective

<sup>1</sup> *The Lancet*, August 15, 1931.

when taken only once a day, and, if so, what is the minimum dose required to protect a person bitten by infected mosquitoes several times a week over long periods.

In a letter, P. H. Manson-Bahr comments on the work of James, Nicol and Shute, and remarks that he has been in the habit of advising persons proceeding to a malarious country to take 0.01 gramme of "Plasmoquine" and 0.125 gramme of quinine each evening at bedtime during the malaria season.<sup>1</sup> He states that he has received encouraging reports on the efficacy of this measure of prophylaxis.

There is a good deal yet to be learned about "Plasmoquine" in regard both to its parasiticidal and its pharmacological effects. James, Nicol and Shute show that, when taken in comparatively large doses, it is efficient as a prophylactic against malaria. Probably, as Manson-Bahr suggests, a dose of 0.01 gramme daily would be sufficient; but whether or not this is so, "Plasmoquine" is not an ideal drug. In some instances its administration causes abdominal discomfort, even actual pain; in others it causes cyanosis. This cyanosis apparently does not occur if quinine is given concurrently, and certain observers have declared that it has no serious significance; but most physicians will not be easily convinced of this. Nevertheless, it must be admitted that there are great possibilities in "Plasmoquine" as a prophylactic agent. If the drug has a specific action on the sporozoite, its presence in the circulation in a sufficiently high concentration at the time of the infective bite should insure against infection. The required concentration and the length of time necessary for the elimination of "Plasmoquine" from the circulation must be discovered.

There are two important points to be borne in mind in regard to the clinical use of "Plasmoquine": It is safest to give it with quinine; it should not be taken on an empty stomach. Doubtless, in the course of time, a drug more nearly approaching the ideal will be discovered. Until then persons proceeding to a malarious country might reasonably be advised to take "Plasmoquine" and quinine (sold in tablet form as "Plasmoquine Compound") in the prophylactic doses recommended by Manson-Bahr.

#### IMPURITIES IN MEDICINAL IRON PREPARATIONS.

THE aim of the manufacturing chemist is to produce drugs entirely free of impurities. Advances in chemistry within recent years have enabled him to attain his ideal in many instances. But this provision of an absolutely pure article is not always an unmixed blessing; the impurities themselves may possess important therapeutic properties. Just as food may be prepared and reprepared and purified until it loses much of its natural goodness, so may the value of a drug be greatly reduced by over-preparation. Recent work on the anaemias, particularly so-called simple achlorhydric anaemia and the nutritional anaemia of infants, has revived

interest in iron medication. A good deal of attention has been given to the composition of therapeutic preparations of iron; the importance of certain impurities, especially copper and manganese, has been stressed by some observers, and it has even been stated that medicinal iron is of little or no value without these impurities.

J. H. Sheldon and Hugh Ramage recently undertook an investigation of various iron salts and pharmaceutical preparations, with the object of discovering their content in metallic impurities and of ascertaining whether this content was variable in different samples of the same drug.<sup>1</sup> They examined 65 specimens, obtained from several sources, of 48 different preparations of iron in common use. The quantitative estimations were made by the employment of a spectroscopic method of examination devised by Ramage. By this means the presence of the merest trace of copper and manganese may be recognized. The test is not so sensitive for the detection of zinc, and Sheldon and Ramage remark that their failure to find zinc is not sufficient proof of its absence.

They found that copper occurs in very variable amounts, not only in different preparations of iron, but in samples of the same preparation from different manufacturers, and even in different samples of the one preparation from the same manufacturer. For example, in one specimen of *ferrum redactum*, there was the merest trace of copper, whereas in another there was 0.025%. Copper could not be detected in twelve instances. Manganese was found far more frequently, and in larger, though still variable, quantities. Traces of lead were found in five specimens, and in one specimen of *ferri perchloridum* lead was in the proportion of 0.125%. Obviously the employment of a preparation containing such a large quantity of lead would not be free of danger.

Sheldon and Ramage point out that, as the degree of impurity is so variable, an investigation into the medicinal properties of an iron salt can be of value only if the one sample is used throughout the experiment. Furthermore, it is not logical always to attribute the value of iron preparations to their copper impurity, as roughly one-fifth contain no copper. Several workers have stated that manganese is concerned in the production of haemoglobin; if this is so, manganese may be an important factor in the production of the therapeutic effects usually ascribed to iron medication; for it is almost constantly present in all iron preparations.

Sheldon and Ramage have commenced a useful and timely work that should be continued by others. It is necessary to compare the effects of the administration of a pure iron salt with those of a preparation containing copper, of one containing manganese, and of one containing both copper and manganese. The effects on man must be investigated, though admittedly the investigation would be long and tedious. Too great reliance must not be placed on the results of experiments on animals.

<sup>1</sup> *The Lancet*, August 22, 1932.

<sup>1</sup> *The Quarterly Journal of Medicine*, January, 1932.

## Abstracts from Current Medical Literature.

### MORBID ANATOMY.

#### Cor Biloculare.

ABRAHAM TOW (*American Journal of Diseases of Children*, December, 1931) describes a case of *cor biloculare* occurring in a girl aged five months. The heart was found to be dilated and hypertrophied, being about half again its usual size. The septum was entirely absent. There was a single ventricle and a single auricle, between which was a bicuspid valve. The auricle received the superior and inferior *venae cavae* and the right and left pulmonary veins as from separate vessels. From the ventricle there was an aorta from which arose a right and left pulmonary artery as it emerged from the heart. The right half of the common auricle was trabeculated and of normal appearance, and the left half was lined by thickened smooth endocardium. There was a distinct line of demarcation between these two types of endocardium. The author refers to similar cases in the literature. One patient with this condition lived to be sixteen years of age.

#### Portal Stagnation.

C. BOLTON AND W. G. BARNARD (*The Journal of Pathology and Bacteriology*, November, 1931) have investigated the pathological changes occurring in the liver as a result of experimental venous stagnation. They carried out experiments on cats. The animals were killed at varying intervals after a constricting band had been applied to the inferior *vena cava*. In each instance the vein was narrowed to a diameter of approximately three millimetres, half the normal diameter. They conclude that when any obstacle is interposed to the return of blood through the inferior *vena cava* to the heart, whether the obstacle be due to right-sided heart failure or to increased pressure in the chest, the resulting increase of venous pressure passes back through the liver to the portal vein. Owing to distension of the splanchnic area, however, a high portal pressure sufficient to maintain compensation is impossible, and the arterial pressure falls. Arterial constriction does not relieve the condition. At this stage there is definite venous stagnation in the liver, with resulting necrosis and cellular degeneration. There is an increase of lymph production and the lymph stagnates in the liver and leaks out of the capsule as ascitic fluid. In other organs to which the liver acts as a buffer, such extensive changes do not occur; the capillaries in these organs are congested, and excessive lymph production leads to dropical effusion. At a later stage the blood increases in volume and the pressures go up in all parts; the flow of blood

through the liver and the lymph flow from its lymphatics are increased. In this way compensation is partially effected, and in local obstruction of the inferior *vena cava*, anastomoses, more readily established in the systemic than in the portal area, complete the process of compensation, although the liver contains permanently dilated channels around the hepatic venules. In congestive heart failure recovery of the heart entirely removes the obstruction, and compensation is completely restored; after repeated attacks the liver and great veins remain permanently dilated. Any subsequent necrosis of the cells must be looked upon as the result of an acute exacerbation of the congestion. It is not anomalous that a higher portal pressure should be associated with less severe cellular change in the liver. It has been shown that raised intracapillary pressure is merely a contributing factor in the causation of passive oedema. If it were possible to raise the portal pressure high enough to insure a normal blood flow through the obstruction, the changes in the liver would be limited to dilatation of the vessels and a minimal degree of pressure atrophy.

#### Route of Tuberculous Infection.

B. M. FRIED (*Archives of Pathology*, November, 1931) has endeavoured to infect rabbits with tubercle bacilli by way of the trachea. He used 0.5 milligramme of bacilli emulsified in one cubic centimetre of a physiological solution of sodium chloride. He found that injection of this emulsion into the trachea causes an instantaneous reaction in the lungs. The early lesion, "the primitive tubercle", is found in the lung within five minutes of aeroogenous infection. The lesion is intraalveolar, being a "parenchymatous alveolitis". The cells that respond primarily to the acid-fast bacilli are those commonly known as respiratory epithelium. Under the influence of the tubercle bacillus these cells undergo instantaneous morphological changes, proliferate, separate from the wall of the air sac, phagocytose the bacilli and form typical miliary tubercles. They also form giant cells of the Langhans type. Rabbits infected with bovine tubercle bacilli by way of the trachea survive from three to four times longer than those infected with the same amount of bacilli by way of the blood stream. In many of the aeroogenously infected animals the bacilli remain apparently immured for life in the lungs, for no lesions or bacilli are detected in organs outside the pulmonary tissues.

#### Syphilis of the Bladder.

I. JOVANOVITCH (*Wiener Medizinische Wochenschrift*, October 24, 1931) states that vesical syphilis which occurs in the secondary stage, is more prevalent than has been suspected and is seen more frequently than tuberculosis. It is usually confused with ordinary cystitis. The characteristic symptom is lack of pain associated

with no extravesical signs. Blood vessels are circoid in appearance, any papules or ulcers are painless, and purpuric patches occur in the mucosa, which resembles snake skin or goose flesh in appearance. The primary ulcers do not tend to bleed, but tertiary lesions are difficult to separate from malignant growths, except after treatment. Vesical syphilis is a lesion of the vessels of the submucosa. It is first noted in the trigone or in the fundus.

#### Lesions in the Lateral Horns of the Spinal Cord.

S. T. ORTON AND L. BENDER (*Bulletin of the Neurological Institute of New York*, November, 1931) describe the histopathology of the central nervous system in one case of acrodynia, one of pellagra, and five of pernicious anaemia. They found in all cases severe lesions in the lateral horns of the lumbar and thoracic levels of the spinal cord and analogous areas of other levels. Since the lateral horn region contains the cell bodies of the effector neurones which serve to connect the spinal cord with the sympathetic nervous system, lesions in this area are held to be in suggestive relation to the disturbances of vasomotor and splanchnic control, which are common to all these diseases.

#### Erythema.

W. G. WYLLIE AND R. O. STERN (*Archives of Disease in Childhood*, June, 1931) have examined the anterior horns of the spinal medulla and the peripheral nerves in seven fatal cases of erythema. Degenerative changes were found in the peripheral nerves in four of the seven cases, being most pronounced in those of the longest standing. In one child which died suddenly, the only nerve showing any recent degeneration was the vagus. Chromatolysis of the central type was again most evident in the lumbosacral region. Only two cases showed any changes above the medulla, consisting of slight cellular infiltration in the cerebral cortex and medulla. The authors failed to support the conclusions of Kernohan and Kennedy that deformities of cells, eccentricity of nucleus and so forth, found in the *eminentia teres*, fifth nerve root, and thalamus, are part of the disease. They consider such findings as normal in these areas. They comment on the relative paucity of histological damage, to the extensive symptomatology of the clinical disease. They discuss the pathogenesis of the disease and give prominence to the avitaminosis theory as supported by Stern and Findlay's experimental work on rats, when an erythema-like syndrome was produced by a diet in which dried egg white was the sole source of the protein, and when the syndrome could be prevented by the addition of raw liver to the diet. Intratracheal and intracerebral injections of spinal cord emulsions have so far failed to transmit the disease. They state that so far Feir's theory of dysfunction of

the vegetative nervous system has received insufficient attention, though unconfirmed, except in one case (Francioni and Vigi) by structural alterations in the sympathetic ganglia.

## MORPHOLOGY.

### Peripheral Nerves.

G. B. HASSIN (*Archives of Neurology and Psychiatry*, January, 1932) discusses some problems concerning the normal and pathological histology of nerve fibres. He concludes that the structure of a peripheral nerve is more complex than that of a central fibre, that Schwann cells and Schwann membrane form one structure and separate the parenchyma from surrounding mesodermal tissues. The Schwann cells undergo irreparable changes in Wallerian degeneration, and are, like the damaged parenchyma, removed from the place of the lesion, so that, as such cells cease to exist, new fibres cannot be produced from them, as has been maintained. The Schwann cells evidently come from the central stump and accompany the outgrowing new fibres. The endoneurial cells growing in both central and peripheral stumps merge to form cell cords, which constitute the proper conducting pathways for the outgrowing nerve fibres. Such cords not only assure proper pathways for the growing nerve fibres, but assist in their metabolism by removing the products of the latter. The absence of such syncytial structures from the brain is probably the cause of the failure of central fibres to regenerate.

### The Subarachnoid and Perineural Spaces.

C. G. DYKE AND E. M. DEERY (*Bulletin of the Neurological Institute of New York*, November, 1931) demonstrate the existence of direct communication from the spinal subarachnoid space along the spinal nerves for at least a distance of ten centimetres from the intervertebral foramen. They believe that the so-called perineural lymphatic spaces are possibly not lymphatic channels in the usual sense, and may well be a part of the mechanism for the escape of cerebrospinal fluid.

### The Ingrowth of New Blood Vessels.

WITH the development of standard transparent chambers for insertion into the rabbit's ear, E. R. Clark *et alii* (*Anatomical Record*, August 25, 1931) have been able to study continuously, with high microscopical magnifications, the growth of new blood vessels and their subsequent changes, together with simultaneous observations of the circulation, in permanent preparations, under controlled and approximately uniform conditions for periods of six months to over a year. They show that the vascular pattern, even in the relatively stable

"adult" stage, may undergo extensive remodelling during the course of months, and they demonstrate clearly that the mammalian vascular system is a remarkably labile one, in which the sending out of new sprouts and the retraction of others and the remodelling of whole networks take place in response to changes in the circulation which are induced by external mechanical, chemical or thermal stimuli.

### Intrauterine Changes in the Pregnant Rat Deprived of Vitamin E.

JOHN A. URNER (*Anatomical Record*, August 25, 1931) states that a group of albino rats deprived of vitamin E exhibited normal growth, oestrous rhythm and breeding behaviour, but that pregnancy in the entire group was followed by embryonic death and resorption. Earliest evidence of embryonic pathological change was found on the tenth day, and by the twenty-first day of pregnancy the uterus had returned to an almost virginal condition.

### Effects of Hypophyseal Hormones on Orogenesis in the Foetal Ovary.

OLIVE SWEZY AND H. M. EVANS (*Anatomical Record*, August 25, 1931) show that no appreciable results can be detected in the ovaries of fetal or new-born rats when the ovaries of the mother rats are removed at the seventeenth day of pregnancy or when injections or implants of rat hypophyses, beginning at the same date, are made into the mother rat. Implants of rat hypophyses into rats, three days old, also had no effect. In the adult rat treatment with hypophyseal hormones had no effect on the formation of new ova from the germinal epithelium.

### The Direction of Hair After Rotation of Skin.

MILDRED TROTTER AND HELEN L. DAWSON (*Anatomical Record*, August 25, 1931) show that, after rotating a piece of skin on the back of a guinea-pig and subjecting it to manipulation in the opposite direction for a period of over a year, the hair in all cases maintains its original direction, responding in no way to the external mechanical influences.

### Innervation of the Suprarenal Gland.

LOUIS K. ALFERT (*Anatomical Record*, September, 1931) found by the Spielmeyer technique applied to myelin sheaths, that nerves approaching the suprarenal glands are myelinated. Many passing through the cortex were myelinated, but no myelinated nerves were observed in the medullary portions of the glands. The finer nerve fibres which came into intimate relation with the cells of the glands, were found to be unmyelinated. By the original Nissl technique numerous ganglion cells were found, both on the surface of the glands and within the medulla, especially in the region of the hilum; none, however, were observed in any of the cortical layers. The Bielschowsky

technique was employed in the study of the finer distribution of the nerve fibres. The cells of the *zona glomerulosa* were seen to be supplied by short fibrils directly from the nerves in the capsule. Longer fibres passed down between the columns of the fascicular zone, anastomosing abundantly and forming networks which enclosed the cells and sent tiny branches to end within them. These fibres supplied the cells of the *zona reticularis* in a similar manner.

### Anatomic Variations of the Cranial Venous Sinuses.

E. A. EDWARDS (*Archives of Neurology and Psychiatry*, October, 1931) found that about 90% of skulls had a difference in the diameter of the outgoing venous sinuses of the two sides. The larger was found on the right side slightly more frequently than on the left side. Discrepancy in size may reach a ratio of 4 to 1. In the cases in which the sinuses were larger on the right, the variation in size was greater than when the left side was the greater. The left venous channel was always longer. The increased resistance to flow thus caused increased the amount of blood carried by the right side when the right side was larger, and tended to diminish the discrepancy when the left side was larger. The relation of these facts to the effect of jugular compression in lumbar manometric tests is discussed.

### Cranial Sensory Nerves.

WALTER DANDY (*Archives of Neurology and Psychiatry*, January, 1932) finds, on cutting the posterior half of the sensory root of the trigeminal nerve in cases of *tic douloureux*, that there is almost no loss of sensation demonstrable objectively or appreciable subjectively by the patient, that the characteristic pain of *tic douloureux* is permanently abolished, and that cure of the pain appears to be obtained regardless of the peripheral branch or branches involved. He concludes that there is no accurate subdivision of the sensory root into three anatomical subdivisions corresponding to the peripheral branches of the nerve, and that there must be, in some degree at least, a distribution of fibres according to function in the sensory root. The author also records a case in which the right optic nerve was accidentally divided through more than half of its transverse extent, and yet not the slightest defect of vision could be detected in the affected eye at any time.

### Intracerebral Vascular Nerves.

WILDER PENFIELD (*Archives of Neurology and Psychiatry*, January, 1932) finds that intracerebral and intramedullary arteries (and to some extent the veins) are innervated in a manner similar to that of the blood vessels of the *pia mater*, and that the two nerve plexuses are continuous. Thus, from a purely morphological point of view, intracerebral vaso-motor reflexes are possible.

## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Mater Misericordiae Hospital, Brisbane, on November 6, 1931. The meeting took the form of a series of demonstrations by the members of the honorary staff.

#### Parathyroid Deficiency.

DR. P. W. MACGREGOR showed a female patient who had been admitted to hospital in May, 1931, with a history of giddiness, weakness and fainting turns for the previous eighteen months. She had suffered from menorrhagia and always felt cold; her skin and hair had been dry. Anaemia had been suspected, but a blood count had revealed a normal number of red cells. The basal metabolic rate had been estimated twice; on the first occasion it was found to be reduced 40% below the normal, and on the second 45% below the normal. Thyroid gland had been given in a dose of 0.03 grammes (half a grain) three times a day. She had reported in fourteen days complaining of the same symptoms. The dose of thyroid gland had then been increased to 0.18 grammes (three grains) three times a day. At the end of another period of one month the patient had reported no improvement and said that in addition she had become breathless. "Radiostol" had then been given in a dose of 0.6 cubic centimetre (ten minimis) three times a day. Within fourteen days the patient had improved greatly. The dose of thyroid gland had then been reduced to 0.12 grammes (two grains) three times a day, with the same amount of "Radiostol", and the patient had remained consistently well and able to do her own work. Her colour had improved. The skin was moist and normal. The "Radiostol" had been given as recommended by Hansman in a paper on the after-treatment of patients whose thyroid gland had been removed and in whose condition the administration of "Radiostol" had caused marked improvement after thyroid gland alone had failed.

#### Addison's Disease.

DR. R. H. HAYNES showed a female patient, a northern European, aged twenty-five years, who was affected with pigmentation of the skin, which had commenced after the birth of her last child, six months previously. At a count of the blood cells the number of erythrocytes had been estimated at 4,600,000 and the leucocytes at 6,800 per cubic millimetre. Of the leucocytes, 24% had been neutrophile cells, 70% lymphocytes, and 6% eosinophile cells. There had been no reaction to a tuberculin test. The Wassermann reaction had been completely positive. The systolic blood pressure reading was 120 millimetres of mercury. The thyroid gland was slightly enlarged; there were no patches of pigmentation in the mouth. The urine was free from sugar, but a glucose tolerance test had not been carried out. It was suggested that haemochromatosis, Addison's disease and a specific infection of the adrenal glands should be considered in the differential diagnosis. Dr. Haynes remarked that an estimation of the blood cholesterol content might yield useful information.

#### Ulcerative Colitis.

DR. ELLIS MURPHY showed a female patient who had suffered from recurrent attacks of diarrhoea with blood-stained stools since childhood. She had been admitted to hospital in March, 1931, suffering from acute colitis, passing ten to twelve stools per day, containing large quantities of blood and pus. This condition had existed for forty-eight hours at the time of admission, and the patient was very ill and anaemic. The condition had been diagnosed as ulcerative colitis, and colonic lavage with normal saline solution had been given. She had become intolerant to this, and active treatment had been given up. From that time the patient had improved. "Dimol",

"Radiostoleum" and iron and arsenic had been given over a period of four to five months. The progress was now fairly consistently for the better. An attack of influenza had caused a recurrence of the passage of blood-stained stools, and the extraction of a few septic teeth had been followed by a similar disturbance. The patient's colour had improved and was very different from the colour at the time of admission.

A pathological examination of the stools had revealed the presence of pus cells and red blood cells, but no amoeba. Infusorians, however, had been present. "Dimol" had been used against the infusorians. The use of a test meal had revealed that the stomach contained mucus and a greater or less quantity of acid. A sigmoidoscopic examination had revealed ulcers with acutely inflamed borders and denuded centres, very small and bleeding profusely. The red blood cell count had at first been less than 3,000,000 per cubic millimetre, but at the time of the meeting was 4,000,000. The patient was very well, but the slightest upset immediately brought back diarrhoea and the passage of blood-stained stools.

DR. MURPHY emphasized the extreme seriousness of the condition. The Americans claimed good results from the use of autogenous vaccines. To obtain Bargin's bacillus, which was probably the cause of the condition, it was necessary to take scrapings from the ulcer itself through the sigmoidoscope.

#### Duodenal Ileus.

DR. E. D. AHERN showed a female patient who had been ailing for many years. Five weeks previously she had suffered from persistent nausea and vomiting. Dr. A. S. Roe had treated her for a chronic kidney infection, and he had regarded the nausea and vomiting as the result of some interference with the sympathetic nerve supply to the duodenum or stomach.

At operation the duodenum had been found to be 6.25 centimetres (two and a half inches) in diameter, absolutely relaxed, not at all hypertrophied against obstruction, and quite atonic. Fixation of not more than ten centimetres (four inches) of the colon had been performed. The patient had had no symptoms since leaving hospital and had put on weight.

Dr. Ahern said that as a result of colopexy the weight that dragged on the superior mesenteric artery and ganglion was lifted.

#### Carcinoma of the Breast.

DR. L. M. MCKILLOP showed a female patient aged forty-one years, upon whom twelve years previously a very radical operation had been done by him for carcinoma of the left breast and axillary glands. At the time, the pathological report on the glands excised from the axilla had been very unfavourable. The patient had made a complete recovery, had had two children since, and had remained perfectly well.

#### Carcinoma of the Tongue.

Dr. McKillop also showed a man, aged forty-three years, who, four years previously, had been operated on for carcinoma of the anterior third of the tongue. Glands had been removed from the neck on both sides. The patient had reacted to the Wassermann test, but the pathologist had reported that the tongue specimen was definitely malignant. The patient had recovered a considerable degree of his speech and had remained well but for a small recurrence, which had been excised three years previously from one edge of the stump of the tongue.

Dr. McKillop's next patient was a man, aged eighty years, who had first been examined on July 4, 1930, suffering from an epithelioma of considerable extent beneath the left side of the tongue on the plica. On July 14, five platinum screened radium needles, each containing one milligramme of radium, had been inserted round the growth. They had been left in position for eight days. A total radiation dosage of 960 milligramme hours had thus been given. No glands could be palpated in the neck. The lesion in the floor of the mouth had quickly

responded to the treatment, and at the time of the meeting, nearly sixteen months later, no trace of the neoplasm could be seen.

#### Epithelioma of the Faucial Pillar.

Dr. McKillop also showed a man, aged sixty-nine years, who, in June, 1930, had been found to be suffering from an epithelioma of the left anterior faucial pillar and left side of the base of the tongue. On June 16 five needles, each containing half a milligramme of radium, had been implanted in the growth and left in position for nine days (a total dosage of 430 milligramme-hours). The lesion had slowly regressed and at the time of the meeting no trace beyond the usual scarring could be found.

Dr. McKillop's next patient was a man, aged seventy-three years, who had presented himself for treatment at the cancer clinic on October 15, 1931, for a cauliflower-like mass growing from the left anterior faucial pillar. There had been no reaction to the Wassermann test. Ten radon seeds containing the equivalent of 20 milligrammes of radium element had been buried in the tissues around the growth. Three weeks later, at the time of the meeting, the neoplasm had almost disappeared, and pain and discomfort had almost gone. This patient was, of course, still under observation.

#### Malignant Growth on the Face.

Dr. McKillop's next patient, aged fifty-four years, had developed an extensive malignant condition about the left ear, which had first been treated in Townsville about seven years previously. After operation the growth had recurred. Seven months previously Dr. McKillop had removed portion of the pinna and lobe of the ear and a portion of the mastoid process and auditory canal. An excellent cosmetic result had been obtained, but the facial nerve, which had become involved in the growth, had been destroyed during the operation. The growth was an endothelioma of the slow growing variety.

#### Tumour of the Abdominal Wall.

Dr. McKillop's next patient was a woman, aged thirty-three years, who was presented to the meeting for diagnosis of a large circumscribed solid tumour occupying the middle third of the right *rectus abdominis* muscle. The tumour had appeared first about eighteen months previously, but had increased in size during the few weeks preceding the meeting. She had been referred to the clinic by Dr. A. J. Lynch, who had suspected malignancy. The mass was found to be movable. The general opinion of members present was that the condition was either a fibrosarcoma or myosarcoma. Dr. McKillop intended to remove a portion with a diathermy knife for biopsy.

#### Specimens.

Dr. McKillop showed specimens that had recently been removed at operation.

The first specimen was a uterine fibroid, weighing 7.4 kilograms (sixteen and a half pounds), removed from a patient who herself, before operation, weighed only 37.8 kilograms (84 pounds).

The second specimen was a large retroperitoneal cyst, which had been found lying between and distorting the ileo-caecal valve, causing dyspeptic symptoms. It measured some 12.5 centimetres (five inches) in diameter and had been removed intact.

The third specimen was an appendix containing several faecaliths. Dr. McKillop remarked that this specimen was shown to emphasize the mimicry (seen so frequently in these cases) of duodenal lesions.

#### Diverticulitis.

Dr. McKillop also showed a specimen removed by Dr. E. D. Ahern from an elderly lady who had suffered from symptoms of bowel obstruction for some time. A report had not yet been received from the pathological department as to the nature of the mass, which resembled an area of bowel affected with diverticulitis rather than a neoplasm.

#### Carcinoma of the Anus and Vagina.

Dr. McKillop also showed a patient upon whom he had recently performed a colostomy according to the method employed at the Mayo Clinic for inoperable carcinoma about the anus and vagina. He pointed out the advantages of this type of operation.

#### Cancer of the Rectum.

Dr. McKillop showed a patient upon whom, nearly two years before, he had performed a very radical abdomino-perineal resection for cancer at the pelvi-rectal junction. The patient had put on 12.6 kilograms (twenty-eight pounds) in weight, felt very well, and had no trouble at all in managing his colostomy opening.

Dr. McKillop then briefly discussed cancer of the rectum. He said that rather more than one-third of all cancers occurring in the whole alimentary tract were found in the rectum. Women were almost as frequently affected as men, and the disease occurred at all ages, from childhood to the eighth or even the ninth decade. Sir Haliburton Woring stated that he had seen the disease in a girl of sixteen years. Persons most commonly affected in this country were between the ages of forty-seven and sixty-five years, approximately. Many theories had been advanced to explain the aetiology of cancer of the rectum, as, indeed, of cancer anywhere else in the body. By pathological investigation it had been learned that the alimentary tract, and particularly the colon and rectum, was a favourite site for adenomata of the polypoid type, really tissue rests. Similarly, embryonic remains in other organs, such as the kidney, might and did remain quiescent for a greater or less number of years, until some factor, possibly some hormone influence or some autogenous poison acting as a cell irritant, by exciting such abnormally placed cells to reproduction, set in motion the series of changes which gave rise to the mass of tissue called cancer. Dr. McKillop said that he looked upon cancer as an autoplastic parasite, to all intents and purposes the end result of Nature's effort to grow another individual. The rectum, as Lockhart Mummery had pointed out, was a favourable site for polypoidal adenomata. Dr. McKillop held the firm opinion that constipation, by allowing retained excreta to subject one or more of those little adenomata to chronic irritation, caused cancer of the rectum. He had three reasons for saying so, namely: (i) It had been shown that, side by side with the development of a true cancer of the rectum, proliferative changes in neighbouring adenomata had been going on; (ii) occasionally cancers of the rectum were multiple; (iii) the clinical history obtained from patients suffering from cancer of the rectum almost invariably covered a complaint of chronic constipation, which had often been neglected.

Constipation was exceedingly common, while polyposis of the bowel was comparatively rare. Otherwise, said Dr. McKillop, rectal cancer would be infinitely more common, providing his theory were correct.

Anatomically, the rectum extended from the lower end of the pelvic colon at the level of the third sacral vertebra to a point 3.75 centimetres (one and a half inches) beyond the tip of the coccyx, where it became the anal canal. It was 15.0 centimetres (six inches) in length. In its upper third it was covered on the front and sides by peritoneum, in its middle third only in front; in its lower third there was no peritoneal covering. The relation of the peritoneum to the rectal wall had a marked influence on the surgery of the rectum. The rectum, unlike the pelvic colon, was not sacculated, nor did it possess *tinyæ coli* nor *appendices epiloicae*. The recto-vesical pouch was distant from the anal orifice 8.75 centimetres (three and a half inches) when the bladder was full, but only 6.25 centimetres (two and a half inches) when the bladder was empty. Hence it was necessary to insure that the bladder was thoroughly empty before examining the rectum with the finger. The cells of the mucosal lining of the organ were of the cylindrical type, and all the carcinomata of the adenocarcinomatous type, derived from the cylindrical cells of the follicles of Lieberkühn. The commonest sites for the occurrence of the disease were the recto-sigmoid junction, the ampulla of the organ, and the anal canal. When the disease began at the recto-sigmoidal junction, it quickly

encircled the bowel and caused early symptoms of partial obstruction. When it began in the ampulla, it first was noticed on the posterior wall (where, by the way, adenomata were most commonly found); and when it occurred in the anal canal, the point of origin was almost invariably at the anterior edge of the anus. It seldom occurred in an old fissure, which, of course, was most common in the posterior anal margin.

Clinically, three types of malignancy were seen, namely, a papilliform type, an adenomata type (the commonest), and a colloid type. The prognosis of the first was far more favourable than that of the second and third types. The treatment of colloid cancer was practically hopeless.

With reference to the frequency of the disease, it was noted that during the period 1920-1929 no less than 2,197 persons (1,284 males and 913 females) actually died of rectal cancer in the Commonwealth of Australia. In Queensland during the same period 274 persons (154 males and 120 females) were claimed by the disease. Dr. McKillop's own experience of the disease extended over twenty years and covered about forty cases, of which the large proportion had been seen during the last four or five years.

From a surgical point of view the method of spread in a particular case of cancer of the rectum was of great importance, as it determined, first, the type and extent of the treatment, and secondly, the prognosis. In anal cancer most of the lymphatic spread was by the inguinal lymph glands, and these must be cleared out, whether or not radium had been used at the site of the primary growth in addition to operation. When, however, the neoplasm arose in the rectal ampulla, the spread was slow at first and rapid at a later stage. Ernest Miles had taught the present precise knowledge of the lymphatic spread of cancer of the rectum. Upon this knowledge depended the technique of the abdomino-perineal operation, which had been perfected by Miles, and which, in the treatment of growths of the upper ampulla and recto-sigmoidal junction, undoubtedly gave far better results than any of the older and more conservative procedures. The rectal lymphatics were, as Miles pointed out, in three groups, namely, intramural, interstitial and extramural. The intramural lymphatics were contained in the wall of the rectum, and consisted, first, of a network lying in the submucous tissue, and, secondly, of a plexus lying between the muscle layers. Short channels passing through the bowel wall linked up these two systems. Above, the submucous lymphatics communicated with those of the pelvic colon, and below with the perineal lymphatics which eventually drained into the inguinal glands. The interstitial or intermediary lymphatics were found in the subserous layer of peritoneum where it covered the rectum. There was a lymph sinus between the peri-rectal fat and the external muscular coat, where the bowel was devoid of any peritoneal investment. The extramural were the really important lymphatics, as they drained the efferents from the lymph sinus and themselves drained into the ano-rectal glands which accompanied the branches of the superior haemorrhoidal vessels through the rectal stalks and the meso-colic nodules in the lower part of the pelvic meso-colon. These in turn opened into the lumbar gland opposite the origin of the inferior mesenteric artery. The downward efferents passed through the fat of the ischio-rectal fossa, accompanied the inferior haemorrhoidal vein through Alcock's canal, and emptied themselves into the internal iliac glands. The lateral efferents passed out into a plexus lying between the levator ani muscle and the pelvic fascia, entered the obturator glands and passed thence to the internal iliac glands. As cancer of the rectum was, even nowadays, seldom seen in an early stage, no operation which did not include a proper attack on the lymphatics could be recommended. This was why Miles's operation had so much to recommend it.

The nerve supply of the rectum was derived from the hypogastric sympathetic plexus and the second, third and fourth sacral nerves. As the nerves, particularly the fourth sacral, were constituents of the rectal stalks, in which the upward lymphatics also passed, the earliness and extent of sacral backache could be appreciated.

Dr. McKillop said that it was quite impossible in the short time at his disposal to do more than indicate several

features of importance in diagnosis. First, he stressed the necessity of never omitting a proper rectal examination, by finger or by a proctoscope or sigmoidoscope in every case in which there was a complaint of pain on defaecation, bleeding, mucous diarrhoea, mainly noticeable in the early morning, or a feeling of rectal discomfort. Cancer of the rectum was a serious condition, only to be successfully dealt with in an early stage by radical surgery, and unless patients could be induced to come for examination at the first signs of trouble, the outlook for reducing the morbidity and mortality of the disease must remain poor indeed. Secondly, he stressed the insidiousness of the disease. It was really remarkable to be assured by a stout, healthy looking patient who was found to be suffering from the disease, that he had felt quite well until he had noticed bleeding. Thirdly, Dr. McKillop emphasized the wisdom of having a Wassermann test done, particularly when the lesion was of the stenosing type. Syphilis of the rectum almost always took on the appearance of a stricture.

Epithelioma of the anus was a painful condition from the start. Bleeding was usually early and a sense of burning and sacral discomfort lasted for some time after a bowel movement. If there was what looked like an anal fissure on the anterior or antero-lateral edge of the anus, and if this fissure had an infiltrated base and bled easily, the condition was very probably malignant. This suspicion was confirmed by the presence of hard, almost painless glands in the inguinal region. The ideal treatment nowadays for anal cancer was the application of radium, the malignant area being "fenced in" with needles for about nine days. A mould containing radium was subsequently worn against the anus for a predetermined period. If the disease was at all advanced, a left inguinal colostomy was absolutely essential, as it was in practically every form of rectal cancer.

Cancer of the recto-sigmoidal junction was of great importance, as it accounted for nearly half of all the cases of rectal cancer. It was apparently on the increase. If diagnosed early, it was suitable for complete extirpation, a procedure which held out hopes of permanent cure. The usual type was a scirrhouous or ring type, progressively narrowing the gut wall, sometimes causing complete obstruction. During the progress of the disease the patient complained of gradually increasing constipation, cramping pains across the lower part of the abdomen, flatulent distension of the abdomen, and perhaps occasional attacks of diarrhoea with the passage of a little fairly bright blood. Cachexia and loss of weight were usually late symptoms. In treatment, left-sided inguinal colostomy had to be done, either as part of the abdomino-perineal operation, or as the only measure if the disease was too extensive for any hope of cure. Colostomy in rectal cancer had several advantages. It controlled the diarrhoea and bleeding to an extent, abolished a good deal of pain and irritation caused by the passage of faeces over the neoplasm, lessened toxicity, and undoubtedly prolonged the life and comfort of the patient. Moreover, by means of the necessary laparotomy the extent of the disease could be ascertained and the degree of involvement, if any, of the liver and mesenteric glands could be accurately determined. The unpopularity of colostomy was principally of aesthetic origin, fostered by badly located and ill-planned types of operation.

With regard to the diagnosis of the pelvi-rectal type of cancer, Dr. McKillop remarked that the principal pitfall lay in diverticulitis. Even when the affected loops of gut were thoroughly exposed, it was sometimes impossible to say which condition was responsible for the mass encountered in some cases. In diverticulitis, however, there were no nodules in the liver, the history of bowel trouble was longer, there was sometimes a leucocytosis, and histological examination of an excised gland revealed inflammatory reaction only.

The operation of abdomino-perineal resection was a dangerous and often complicated procedure, with a death roll of about 20% even in expert hands. Dr. McKillop had been in the habit of following, with slight modifications, the steps laid down by Miles, whose work he had had many opportunities of seeing in close detail. Cancer of the ampulla of the rectum usually affected older persons.

Owing to the capacity of the rectum at the ampulla, obstructive symptoms were not common, unless oedema pressed upon an annular growth. The principal early complaint related to a feeling of rectal discomfort, frequency of bowel actions in the earlier part of the day, the passage of mucus that was occasionally blood-tinged, and slight aching across the sacrum. Two types of growth were commonly met with—the exuberant cauliflower type and the infiltrating ring or scirrhou type. Carcinoma of the body of the rectum was a very serious condition, as mixed infection occurred early, and probably had more to do with the rapid decline of the patient than had the neoplasm itself. Spread of cancer cells to the longitudinal muscular coat soon took place and led to eventual involvement of the meso-colic and lumbar glands. Moreover, the tributaries of the portal veins were encroached on, and the liver itself eventually became involved in the spread. If a sufficiently early diagnosis was made, the ideal treatment was radical resection, either by the method of Miles (abdomino-perineal) or by the approach from the perineum (Lockhart Mummery). In the former operation there were the advantages that the necessary colostomy could be done, as part of the one-stage operation or as the first stage of a two-stage operation, the abdominal cavity could be explored, so that the extent of the disease and its operability could be determined, and the glands could be adequately dealt with.

Dr. McKillop said that he regarded radium treatment as a poor alternative to a radical operation, though in many cases marked amelioration could be promised the patient. The radium must be heavily screened, and an open operation for access must be employed. Suppuration almost always ensued, thus adding to the toxæmia caused by the infected growth. Nevertheless, in advanced cases radium certainly did seem good, if properly applied. The older procedures, such as the Kraske operation of splitting the sacrum, were rarely employed nowadays.

#### MEETING OF THE FEDERAL COMMITTEE.

A MEETING OF THE FEDERAL COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION IN AUSTRALIA was held at the Medical Society Hall, East Melbourne, on February 16 and 17, 1932, SIR HENRY NEWLAND, C.B.E., D.S.O., the Chairman, in the chair.

#### Representatives.

The following representatives of the Branches were present:

*New South Wales:* Dr. J. Adam Dick, C.M.G., Dr. C. H. E. Lawes.

*Queensland:* Dr. D. G. Croll, C.B.E., Dr. E. S. Meyers.

*South Australia:* Sir Henry Newland, C.B.E., D.S.O., Dr. Bronte Smeaton.

*Tasmania:* Dr. Gregory Sprott, Dr. A. W. Shugg.

*Victoria:* Dr. F. L. Davies, Dr. J. Newman Morris.

Sir Henry Newland acted as proxy for Dr. D. D. Paton, of the Western Australian Branch.

#### Acting Secretary.

Dr. J. G. Hunter (New South Wales) was present as Acting Honorary Secretary for the meeting.

#### The Late Robert Henry Todd.

Sir Henry Newland referred to the death of Dr. Robert Henry Todd, and moved the following motion:

That this meeting of the Federal Committee records its deep regret at the death of Dr. Robert Henry Todd, the late Honorary Secretary of the Committee, and places on record its sincere appreciation of the great services he rendered to the British Medical Association.

#### Minutes.

The minutes of the previous meeting of March 27, 1931, copies of which had been sent to the members after the meeting, were submitted and signed as correct.

#### Financial Statement.

The financial statements for the six months ended June 30, 1931, and the six months ended December 31, 1931, prepared by Messrs. Coates, Cunningham and Company, Chartered Accountants, and audited by Dr. W. H. Crago, the Honorary Auditor, together with the Australasian Medical Congress (British Medical Association) accumulated funds account, were presented and adopted.

#### Appointment of Office-Bearers.

Sir Henry Newland was appointed Chairman, and Dr. J. Newman Morris Vice-Chairman of the Federal Committee. It was explained that Sir Henry Newland and Dr. Morris hoped to attend the centenary meeting of the British Medical Association in London. Dr. J. Adam Dick was appointed to act as Chairman during the absence of the Chairman and Vice-Chairman.

Dr. C. H. E. Lawes was appointed Honorary Secretary and Honorary Treasurer. It was decided that Dr. R. B. Wade should be thanked for acting as Honorary Secretary during the absence of Dr. R. H. Todd.

Dr. W. H. Crago was appointed Honorary Auditor, and Messrs. Coates, Cunningham and Company were appointed auditors.

#### Medical Officers' Relief Fund.

The balance sheet and revenue account of the Medical Officers' Relief Fund (Federal) were submitted and adopted. Dr. George Bell was appointed Trustee to fill the vacancy caused by the death of Dr. R. Gordon Craig.

#### Public Medical Officers and the Federal Committee.

The Acting Honorary Secretary explained that a communication had been received at a previous meeting from the Public Medical Officers' Association of New South Wales suggesting that arrangements might be made for the direct representation on the Federal Committee of medical practitioners engaged in the public medical services. The late Honorary Secretary, in accordance with a resolution at a previous meeting, had written to the Public Medical Officers' Association to the effect that it was not possible to give direct representation. It had also been explained to the Association that the members of the Society of Medical Officers of Health in Great Britain, referred to by the Public Medical Officers' Association, were in a position entirely different from that of public medical officers in Australia. The Public Medical Officers' Association of New South Wales had now written for information as to the existing machinery enabling public medical officers to bring matters to the notice of the Federal Committee. It was decided to inform the Association that matters might be brought to the notice of the Federal Committee through the Branch Councils.

#### Poliomyelitis.

Reference was made to the work of Dr. Jean Macnamara on poliomyelitis and to the special investigations being made by her in other parts of the world into various aspects of the disease. Dr. A. W. Shugg, on behalf of the Tasmanian Branch, moved:

That Dr. Jean Macnamara be requested to make a report to the Federal Committee on her investigation abroad into methods adopted in dealing with polio-myelo-encephalitis in all its stages.

Dr. Shugg explained that if a report were made to a department, it might be pigeon-holed. He thought that a report should be made to the Federal Committee, so that results might be correlated and an endeavour might be made to induce the Federal Government to assist the States in their work. The motion was carried.

#### The Canadian Medical Association.

A letter was read from the Canadian Medical Association inviting members of the Australian Branches of the British Medical Association to attend the annual meeting of the Canadian Medical Association at Toronto on their way to the centenary meeting of the British Medical Association in London. Reference was made to this matter in THE MEDICAL JOURNAL OF AUSTRALIA of January 2, 1932.

#### The Naval Medical Services.

Reference was made to the conditions of service of medical officers of the Royal Australian Navy. The Acting Honorary Secretary explained that this matter was before the Federal Committee in 1928. The late George Adlington Syme and Dr. R. H. Fetherston were appointed a subcommittee to prepare a report, and their report was before the Federal Committee on August 9, 1928. The Minister for Defence was written to on two occasions.

The subject was brought to the notice of the Federal Committee at the present meeting by the New South Wales and Victorian Branches. The basis of the communication was a letter from a surgeon-commander (retired), in which the causes of the difficulties experienced were completely set out and discussed. After discussion it was decided that the Acting Chairman and the Honorary Secretary should approach the Minister, and that the Editor of THE MEDICAL JOURNAL OF AUSTRALIA be asked to deal with the matter.

#### The Hastings Collection of Books.

The Acting Honorary Secretary reported that an offer had been made by the Parent Body to the late Robert Henry Todd to donate to the Branches in Australia, on behalf of the Hastings and Worcester Medical Association, some old books from the Hastings collection. It was decided to refer the offer to the several Branches.

#### Subscription from Overseas Branches.

At the previous meeting of the Federal Committee the question of a reduction of the annual subscription paid by the Branches in Australia to the Parent Body had been discussed. A letter had been written to the Medical Secretary of the Association. Dr. R. H. Todd was empowered to discuss the matter with the Medical Secretary when he was in London. The Acting Honorary Secretary reported that Dr. Todd had conferred with the Medical Secretary and that the Medical Secretary had suggested to Dr. Todd that the Federal Committee forward a further communication on the matter.

After discussion it was decided that the Chairman and Vice-Chairman should discuss the matter with the Medical Secretary while they were in London. It was also decided that a full account of Branch expenses should be prepared for the use of the Chairman and Vice-Chairman and of the representatives of the Australian Branches on the Council, Dr. T. P. Dunhill and Professor R. J. A. Berry.

#### Federal Council.

At the previous meeting of the Federal Committee it was decided that the proposal for the formation of a Federal Council, representative of the Branches in Australia, should be submitted on behalf of the Branches, together with the proposed Memorandum and Articles of Association and By-Laws of the Federal Council, as drawn up and approved by the Federal Committee and the several Branches.

The Committee had before it a copy of a letter from the Under-Secretary of Justice, of the Department of the Attorney-General and of Justice of New South Wales, forwarded by Messrs. Tress and Cocks, Solicitors of the Federal Committee, referring to the proposed registration of the Federal Committee under the provisions of Section 52 of the *Companies Act*, 1899, of New South Wales. The Under-Secretary set out in a schedule certain amendments to the Memorandum and Articles of Association, and indicated that the issue of a licence would be considered when those amendments were embodied.

The amendments were considered *seriatim*. Some of the amendments proposed were only a matter of wording, and it was thought that others, which might be mandatory, were not desirable. Dr. J. Adam Dick and Dr. C. H. E. Lawes were appointed a subcommittee to interview the Under-Secretary. It was pointed out that when the amendments were embodied in the Memorandum and Articles of Association, the completed document would have to be submitted to the Council of the Parent Body for approval.

#### Australasian Medical Congress (British Medical Association).

A letter was received from Dr. D. D. Paton, President-Elect of the Fourth Session of the Australasian Medical Congress (British Medical Association), to be held at Perth, Western Australia, in October, 1932, asking for an expression of opinion in regard to the advisability of postponing the fourth session of Congress in view of the financial stringency. It was decided to recommend the postponement of the Congress for a period of twelve months.

#### Repatriation Department.

The Council of the Queensland Branch forwarded for the consideration of the Federal Committee the following resolution carried at a meeting of the Council:

That it be a recommendation to the Federal Committee that all medical reports on appellants to the War Pensions Entitlement Appeals Tribunal and the War Pensions Assessment Appeal Tribunal be treated as confidential documents; that is, be submitted only to members of the Tribunal, or at least that no indication be made in any papers available to the appellant or his representatives of the authorship of such reports.

The Council of the Queensland Branch reported a recent instance in which the appellant's representative informed the appellant that the report of a certain medical practitioner was not strongly enough worded, and requested him to alter the report to be more in his favour.

It was pointed out that in the circumstances mentioned by the Queensland Branch Council the appellant was contesting the decision of the Commission in regard to pension, and that all papers should be available to him.

Dr. J. Newman Morris read a statement dealing with the experience of Appeal Tribunals in Victoria, and expressed the opinion that the confidential aspect of the reports was sufficiently safeguarded.

Dr. D. Gifford Croll pointed out that the reports were often a statement of opinion and not of fact.

After further discussion the Committee passed a motion expressing the opinion that, if the regulations were followed, the confidential nature of the reports was sufficiently safeguarded.

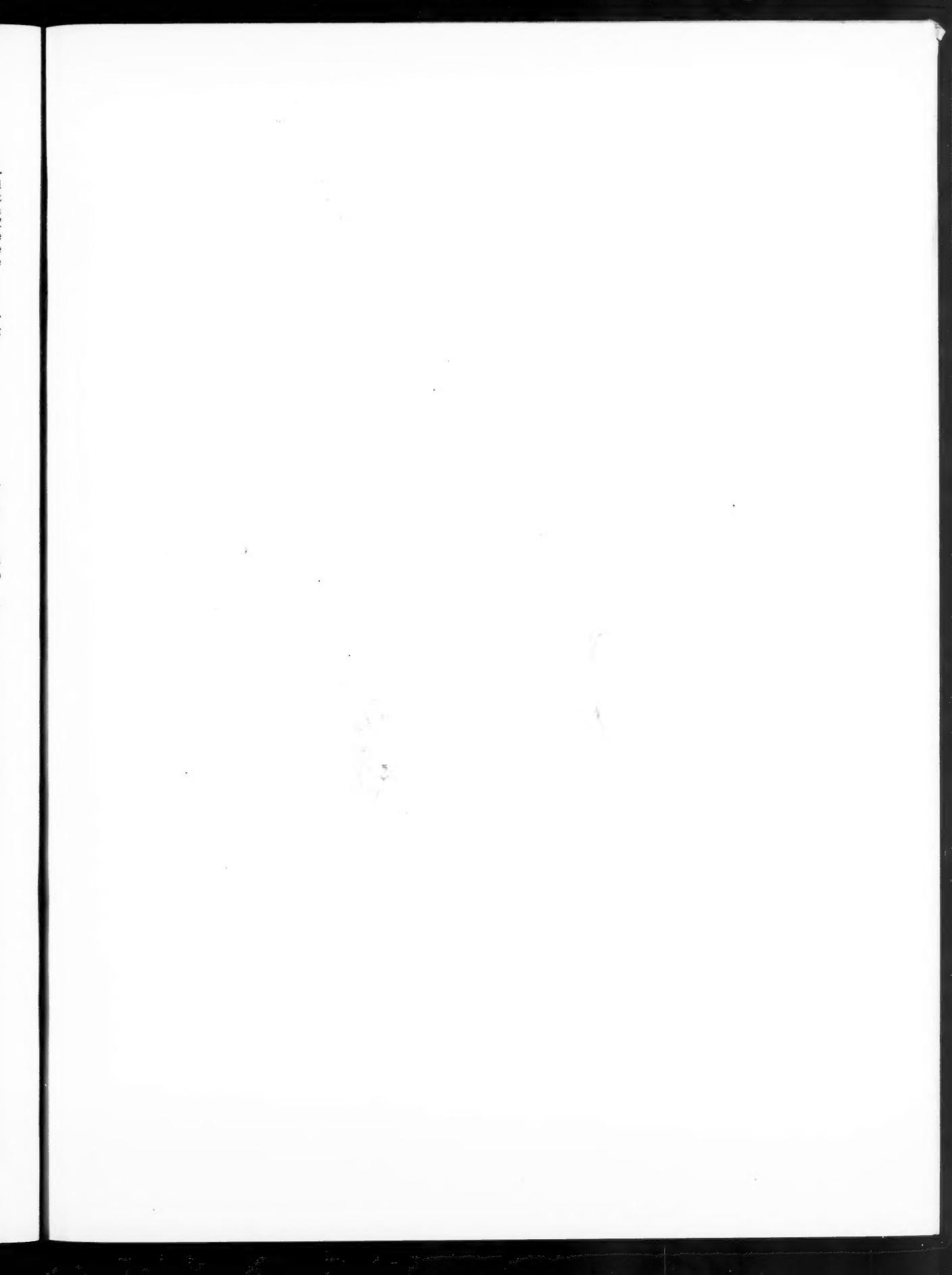
A letter was also read from the Repatriation Department in regard to the War Pension Assessment Appeal Tribunals. Previously these tribunals had power only to continue or increase pensions. It was explained in the letter that legislation had recently been passed giving the tribunals power to increase, reduce or continue pensions. It had been intended to give the tribunals power to discontinue pensions, but the Senate had rejected this provision. It was decided to send this information to the Branches.

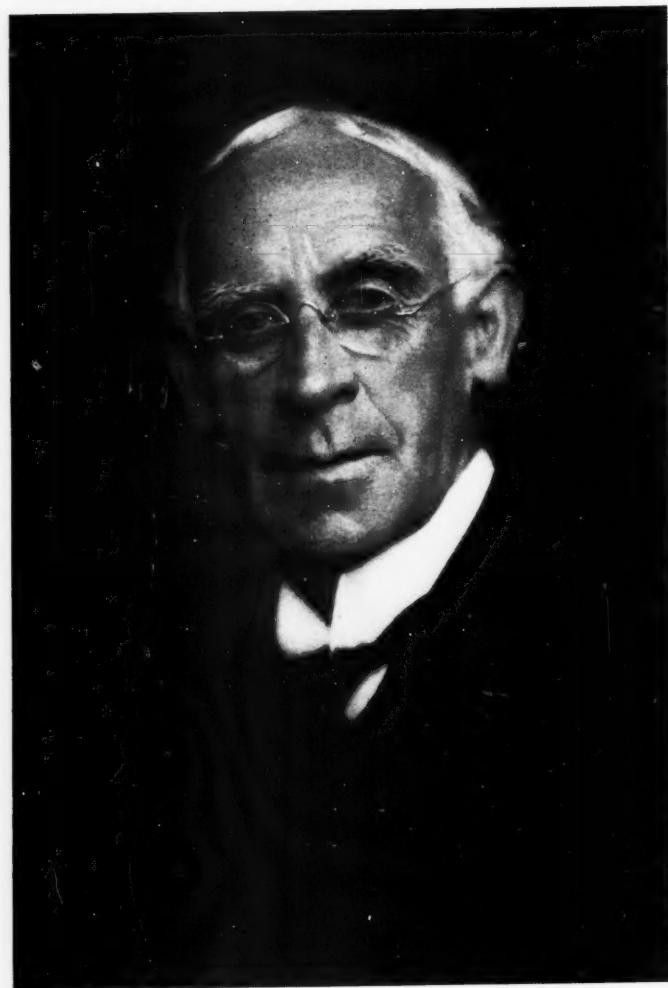
#### Medical Services to Natives in Central Australia.

At the previous meeting of the Federal Committee a report on medical services to natives in Central Australia, by Dr. F. L. Davies, Dr. J. Newman Morris and Dr. G. Simpson was considered. A copy of the report was forwarded to the Department for Internal Affairs. The Acting Honorary Secretary read a reply from the Minister for Home Affairs, giving observations on the report. It was resolved that a copy of the reply of the Minister be sent to THE MEDICAL JOURNAL OF AUSTRALIA for publication.

#### Conditions of Service of Government Medical Officers at Nauru.

A letter was received from the Victorian Branch asking the Federal Committee to inquire into the conditions of service of the Government Medical Officer at Nauru. It was stated that successive medical officers at Nauru had found the conditions of service at Nauru difficult and not in accordance with recognized custom. It was held that the prevailing conditions sometimes acted detrimentally to the patients. It was decided that the matter be brought to the notice of the Department, with the request that the facts, as alleged, be investigated.





*Brooks*



**Date and Place of Next Meeting.**

It was determined that it be left to the Acting Chairman to fix the date and place of the next meeting.

**Thanks.**

Votes of thanks were accorded to the Chairman, Sir Henry Newland for presiding, to Dr. J. G. Hunter for his services as Acting Honorary Secretary, and to the Council of the Victorian Branch for their hospitality and for the accommodation provided for the meeting.

**NOMINATIONS AND ELECTIONS.**

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Devenish-Meares, Stanley, M.B., 1930 (Univ. Sydney), 6, Chandos Street, Ashfield.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Murphy, George Edward, M.B., B.S., 1925 (Univ. Melbourne), 149, Whitehorse Road, Box Hill.  
 Cohen, Abraham Bertram, M.B., B.S., 1928 (Univ. Melbourne), 250, High Street, St. Kilda, S.2.  
 Hodges, George Chapple, M.B., B.S., 1931 (Univ. Melbourne), Melbourne Hospital, Melbourne, C.1.  
 McColl, Bernard Howard, M.B., B.S., 1928 (Univ. Melbourne), c/o The British Medical Association, Tavistock Square, London.  
 Marsden, Charles Moustaka, M.B., B.S., 1930 (Univ. Melbourne), 27, Chapel Street, St. Kilda, S.2.  
 Officer, Robert, M.B., B.S., 1931 (Univ. Melbourne), Alfred Hospital, Prahran, S.1.  
 Paterson, James Hudson, M.B., B.S., 1930 (Univ. Melbourne), 40, Marine Parade, St. Kilda, S.2.  
 Wedlick, Leigh Thornton, M.B., B.S., 1929 (Univ. Melbourne), Infectious Diseases Hospital, Fairfield, N.20.  
 Stone, Harold Crowcombe, M.B., B.S., 1931 (Univ. Melbourne), 14, Park Street, St. Kilda, S.2.  
 Rodda, Edgar Kenneth, M.B., B.S., 1928 (Univ. Melbourne), Hospital for the Insane, Mont Park.

**Obituary.****ROBERT HENRY TODD.**

If denial of self and service to others are among the noblest qualities of man, Dr. Robert Henry Todd, whose death is mourned by the medical profession throughout the Commonwealth and by many in the Old Country, must be given a high place in the annals of Australian medicine. History shows that advance in any walk of life has been achieved by the efforts of one or more persons who set up an ideal, who made themselves of no account and strove valiantly to attain their objective. Medicine has been served in this way by not a few. The history of the British Medical Association in England holds a record of service and devotion by those who believed that the altar of medicine should be served by men, clean of heart and hand, prepared to offer sacrifice even of themselves. What these men were in England, Robert Henry Todd has been in Australia.

Robert Henry Todd was born on July 10, 1859, at Number 2, Old Burlington Street, London. His father was Armstrong Todd, M.D., and his uncle, Robert Todd, also a medical practitioner, had a large share in founding Saint Peter's Hospital for Stone, Henrietta Street, Covent Garden. He was educated first of all at Christ's Hospital. Those who knew Todd in his later years can well imagine with what pride he wore the blue coat of his school. The tradition of his school with that of his family without

doubt helped to give him that attitude of mind towards accepted tradition which marked his work in Australia. In his choice of a profession his mind naturally turned to medicine, but first of all he studied the *litteræ humaniores* at Oxford. He went into residence at Hertford College and graduated as Bachelor of Arts. He rowed in the college boat which was head of the river in 1881. After obtaining his arts degree he studied medicine at Trinity College, Dublin, where he graduated Bachelor of Medicine in 1886. In the same year he was admitted to the degrees of Bachelor of Surgery and Doctor of Medicine. He also obtained a Diploma in State Medicine. In 1887 he gained the Fellowship of the Royal College of Surgeons of Ireland. In the same year he married Miss E. J. Orr, and shortly afterwards sailed for Australia on the ship *Hawkesbury* as surgeon. He arrived in Sydney in 1887.

After his arrival in Sydney Todd practised for a period in the suburbs. He was appointed Honorary Anæsthetist at the Prince Alfred Hospital (in those days it had not the prefix "Royal"). His appointment was the first of this kind and he did some useful work in organizing his department. Before long he left Sydney and took up practice at Maclean, on the Clarence River. It was while he was at Maclean that he suffered from an infection of the left wrist following an injury received while performing a *post mortem* examination. This marked the turning point in his career. His wrist was left permanently weakened and he found it difficult to carry out the routine of general practice. From the point of view of his later work with the New South Wales Branch of the British Medical Association, these years cannot be regarded as wasted. On the contrary, his practice in the suburbs of Sydney, his appointment at Prince Alfred Hospital and his sojourn at Maclean were an excellent preparation for his subsequent labours. He could, as Honorary Secretary of the New South Wales Branch of the British Medical Association, appreciate many of the difficulties and problems of the general practitioner. It seems in retrospect as though his course were being deliberately shaped towards its destined end. As a result of his wrist injury he made the momentous decision to study law. He was called to the Bar of New South Wales in December, 1894. He was soon appointed City Coroner and was also chairman of several industrial boards. These bodies carried on many of the functions at present exercised by the Arbitration Court. He was peculiarly well suited for these duties.

In 1904 Todd acted as Associate to the President, the late Charles Mackellar, of a Royal Commission on the decline of the birth rate in New South Wales. He was largely responsible for the drawing up of the report.

The year 1891 was the first year of Todd's connexion with the British Medical Association; he joined the New South Wales Branch. Five years later he was elected a member of the Branch Council. In 1908 he was chosen to be Honorary Secretary of the Branch. He served in this position until March, 1931, when he retired prior to making a journey to Great Britain. To say that Todd was Honorary Secretary to the New South Wales Branch would not convey to an outsider any adequate idea of his activities. His capacity for work was enormous, and this, combined with his ethical outlook, his idealism and the caution of his legal mind, had the only possible result in the progress of the Branch and of the Association in Australia along every avenue. It is no disparagement of any of those who held office in the Branch during his secretaryship to say that they learned to be guided by his wisdom. He was so obviously sincere that, though they might sometimes think he hastened far too slowly, though they might look on some of the difficulties he foresaw as remote or impossible, though they might regard some of his schemes as the imaginings of an idealist, they accepted most of his dicta and acted on his advice, to find later on that he was right.

His organization of the affairs of the Branch was along sound lines. As the membership grew, he realized that the Council could not possibly deal with the minutiae of every question or dispute requiring consideration, and he saw that the large body of members would wish to have a louder voice in Association affairs than was possible when the Council had no machinery for consulting the members

whenever it desired. As a result, the work of the Council was split up amongst committees, and the local associations of members were brought into being. Both arrangements have worked admirably. As far as the local associations of members were concerned, Todd was always insistent that they had no status within the constitution of the British Medical Association. They could therefore have no direct representation on the Council. The local associations acted in a most useful way as a liaison between the Council and members of the Branch in a district. The members of the local associations were brought into close relationship with the Council by an annual conference of delegates with the Council. At this conference delegates alone vote, and recommendations are submitted to the Council. The delegates of the local associations attend the quarterly meetings of Council, but do not record a vote. The problems of friendly society lodge practice exercised his mind, and the smooth working of the model lodge agreement is in no small measure due to his care and organizing ability.

Todd's activities were not confined to the New South Wales Branch. He was one of those who took steps to form the Federal Committee of the British Medical Association in Australia, with the object of coordinating the work of the six Australian Branches. He was responsible for the drafting of the constitution of the Federal Committee. The constitution was finally approved by the Council of the Association in England in May, 1914. The first meeting of the Federal Committee was held in Melbourne on May 27, 1912, under the chairmanship of the late W. T. Hayward, with Dr. George Abbott as Honorary Secretary. Todd was present at Assessor to the Committee. From this time onwards he was associated with all the activities of the Committee, and initiated many of them. In 1918 he became Honorary Secretary of the Committee, and held the position till the time of his death. In the conduct of the affairs of the Committee, as in those of the New South Wales Branch, he was meticulous in his attention to detail. He refused to be hurried. His legal training helped him to foresee difficulties here as in Branch affairs, and he could generally suggest a way of overcoming them. The appreciation of his qualities by the members of the Committee was genuine and their affection deep rooted. His singleness of mind and his obvious sincerity made any other attitude impossible. Frequently, as Honorary Secretary of the New South Wales Branch, he had to write to himself as Honorary Secretary of the Federal Committee, and he seemed to enjoy the smiles and sometimes the good natured chaff of the members when he read a letter addressed "To Dr. R. H. Todd, Honorary Secretary of the Federal Committee, Dear Sir", and signed "Yours faithfully, R. H. Todd, Honorary Secretary of the New South Wales Branch".

The first work of the Federal Committee on its institution in 1912 was the establishment of a medical journal which would serve all six Australian Branches. Actually, it was the need for one medical journal for Australia which had a great deal to do with the formation of the Federal Committee and which led the South Australian Branch to make the first move in that direction. At this time there were two medical journals in Australia, *The Australasian Medical Gazette* in New South Wales, and *The Australian Medical Journal* in Victoria. The Federal Committee was not a corporate body and could not own a journal. It therefore undertook the formation of the Australasian Medical Publishing Company, Limited. This Company is composed of eighteen members of the British Medical Association, three being appointed by each of the six Branches. Todd's legal knowledge was again requisitioned, and he was responsible for the drafting of the constitution of the Company. He became its Secretary in 1913, when it was registered at Sydney. Time and time again the completeness of the constitution has been evidenced. The first issue of THE MEDICAL JOURNAL OF AUSTRALIA appeared on July 4, 1914, under the editorship of the late Henry William Armit. When, as time passed, the journal grew and a printing plant became necessary, the constitution of the Australasian Medical Publishing Company, Limited, was quite adequate. So wise and far seeing was Todd that THE MEDICAL JOURNAL OF AUSTRALIA could extend its activities

yet further without any change in the constitution of the company controlling it.

In his capacity as Secretary of the Australasian Medical Publishing Company, Limited, Todd showed a constant and lively interest in the affairs of this journal. When the late Henry William Armit became Editor, Todd held out a welcoming hand, and later on never failed to do his utmost for the journal and its Editor by sympathy, by encouragement and, if he thought necessary, by trenchant criticism. If he criticized, he was just, and gave his reasons without hesitation. The affairs of the journal are managed from month to month by a Local Committee of Management, consisting of the Chairman of Directors, the Secretary, the Editor and the Manager. At these meetings Todd was always more than helpful. He probed the accounts to discover the exact rate of progress; or he would ask questions and go into the most minute detail until he understood what was necessary in regard to a printing process or a piece of machinery. He was always insistent on the establishment of the Australasian Medical Publishing Company, Limited, as a scientific printing press for Australia.

Perhaps the most important of Todd's works after the Federal Committee was formed, was that connected with the alterations of the Articles of Association and the By-Laws necessary to give effect to the proposals to grant greater autonomy and freedom of action to overseas Branches. He was appointed by the Federal Committee as representative of the Branches in Australia, and attended in July, 1921, a conference summoned by the annual meeting of the Representative Body of the Association to meet in Newcastle-on-Tyne. As a result of his representations provisions were made to allow the overseas Branches to become incorporated and at the same time to enjoy the status and rights and to retain the functions of Branches. Steps were taken at the same time to protect the remainder of the Association from liability for any act of the incorporated body. It is obvious from this that, throughout the whole of his professional life, Todd used his legal knowledge to further the interests of the medical profession and to establish the Branches on what he regarded as a safe and constitutional basis.

The medical congresses held in Australia and New Zealand in years gone by were not conducted by the British Medical Association. Though many useful congresses were held, their organization was difficult, and the holding of a congress was practically dependent on the life of a president appointed at a previous congress. Todd was instrumental in drawing up the constitution of future congresses so that they should be organized by the British Medical Association. He drafted a constitution which was approved and adopted by the Federal Committee. The congresses are now known under the fitting, if somewhat cumbersome, title of Australasian Medical Congress (British Medical Association).

Such services as Todd rendered to the Association could not fail to call forth the appreciation and gratitude of its members. In 1922 he received the signal honour at the hands of the Council of the Parent Body of election to the position of Vice-President of the Association. In 1923 the Federal Committee of the Association in Australia instituted a gold medal to be awarded from time to time to any member who had rendered conspicuous service to the medical profession, to the Association, and to the community. At the inaugural meeting of the First Session of the Australasian Medical Congress (British Medical Association), held in Melbourne in 1923, the President, the late George Adlington Syme, presented the first medals to the late William Thornborough Hayward and to Robert Henry Todd. When he retired from the Honorary Secretaryship of the New South Wales Branch in 1931, the members of the Branch offered to Todd the position of President-Elect. It was the highest honour they had to offer him. This year, 1932, is the Centenary of the Association, and the members of the Branch hoped that he would be in England to represent them at Tavistock Square at the Centenary celebrations. His appreciation of this honour was very real and his rising to thank the members at the last annual meeting of the Branch was the occasion of a remarkable demonstration of the esteem and affection in which he was held. Had he succeeded to the

position of President he would have occupied the chair which was presented by him to the Branch in 1911—in the designing and construction of this chair he had displayed much taste and had taken infinite care.

Todd's activities outside the sphere of the British Medical Association were numerous. It has been said that the busy man is the one who can always find time for fresh duties. Todd was a busy man, but he disciplined himself to such a degree and organized his expenditure of time so that he was able to do what many another man would not have attempted. For over twenty years, 1907 to 1928, he was a member of the Medical Board of New South Wales. He was for many years Lecturer in Medical Jurisprudence at the University of Sydney. He was very fond of this work, and years ago expressed the wish that his name might some day be associated with a prize in medical jurisprudence. Steps are being taken to give effect to his wish. When a course of lectures on the ethics of medical practice was introduced into the medical curriculum, he was appointed Lecturer; and he held the position until the time of his death.

For several years during the war he was a member of the Disablement and Training Committee of the State War Council, when much of his time was spent in examining and reporting on disabled soldiers and recommending them for treatment and vocational training.

In 1925 a Royal Commission was appointed by the Federal Government under the chairmanship of the late George Adlington Syme to inquire into certain matters affecting health in the Commonwealth. On the invitation of the Government, Todd was nominated by the Federal Committee for appointment as one of the members. The Commission took evidence in the capital cities and in other centres, and published its report in December, 1928.

For many years Todd was a member of the Board of Trustees of the Taronga Zoological Park Trust. He loved animals and understood them. Nothing delighted him more than to take visitors to the "Zoo". He knew the animals, and many of them knew him. Some would take food from his hand. He could sometimes be induced to tell the story of the transference of "Jessie", the elephant, from the old zoological gardens at Moore Park across the harbour to her new home at Taronga Park. The trustees were fearful of the journey. Todd undertook to act as conductor. "Jessie" made the journey at night. When she became unduly inquisitive about something in her path, especially when she came to the punt which was to take her across the harbour, Todd got out of his motor car, spoke to her and coaxed her onwards.

He was fond of music and played the clarinet with the same attention to detail that marked his other activities. He was most fond of chamber music. He acted for some years as Honorary Secretary of the Sydney Amateur Orchestral Society and played as a member of the orchestra under the baton of the late Roberto Hazon. He also played in the orchestra of the Royal Sydney Philharmonic Society.

This account of the career of Robert Henry Todd shows that he led a full life, that he spared not himself, but gave freely of all that was in him. To recite the bare facts of his achievements gives no impression of the man himself, of his kindness, of his consideration for others, of his sense of honour, of his readiness to trust those associated with him. He had a keen sense of humour and could and would sometimes tell an amusing story on unexpected occasions. He was one of what is becoming known as "the old school", a type that is said to be dying out. Men of his calibre are as the leaven of the parable that "leaveneth the whole lump". Were there in every medical community a man actuated by his beliefs, possessed of his courtesy and endowed with his qualities, the world of medicine would be more wholesome, there would be less commercialism and there would be more brotherly love. He has left a mark on Australian medicine which will not be effaced, he has left a memory which will be cherished and he has set an example to be followed.

**Sir Henry Newland writes:**

The news of Dr. Todd's death came as a great shock. Not much more than a week before he had called on me at my rooms on his return from England, and was apparently in the best of health and spirits. He was looking forward

with intense interest to being present at the celebration of the Centenary of the British Medical Association in London this year. I discussed my own plans for the visit with him, and regarded it as assured that I would have the pleasure of his companionship in London. Alas! that is not to be.

I first met Dr. Todd over twenty years ago, when I was Secretary to the South Australian Branch of the British Medical Association. Even at that time he had already acquired a great reputation as Secretary to the New South Wales Branch. The steps which led to the formation of the Federal Committee and the foundation of THE MEDICAL JOURNAL OF AUSTRALIA enabled one to appreciate the ardour with which he worked, and the orderliness of his mind. His legal training and knowledge were most valuable assets, and saved many who were associated with him in official positions from plunging into a sea of troubles. As a secretary he took the greatest pride in the preparation of all his minutes, and loved to recite them in full. To me he always wore rather a crestfallen expression when a meeting resolved that the minutes be taken as read. I think he realized that doctors are not business men, though he was much too polite to say so.

A sterling attribute was his intense loyalty to the British Medical Association, and it is no more than the truth to say that the commanding position the Association occupies in the Commonwealth today is very largely due to Dr. Todd's organizing ability and to the example he set in New South Wales.

He worked for the work's sake in the spirit of true service, and scorned the shekels. No man, of course, is indispensable, but assuredly the passing of Dr. Todd has caused a gap in the ranks of those who serve the profession, which time will close but slowly. We shall fare well if we let the light of a great medical secretary shine before us.

**Dr. R. H. Fetherston writes:**

As a student at Trinity College, Dublin, I first met Todd. We were prosecutors to the late Professor D. J. Cunningham; we worked together and became good friends. Todd was the same then as later in life—particular and thorough to a degree, everything honourable and above board.

We met again some twenty years ago at a Sydney congress of delegates to consider the formation of the Federal Committee. How delighted I was to meet my old fellow student again and to be told by everyone that Todd had had so much to do with the splendid organization and efficiency of the New South Wales Branch—an organization not only complete, but triumphant, as just then Todd had led and won the better terms from the friendly societies which still benefit the members of the Branch. The visiting delegates returned home greatly impressed with Todd and his work in New South Wales, all determined to follow the example of the senior State and all loaded with information of what to do and how to do it, supplied by Todd. The result is the general high state of organization and the strength of the British Medical Association in Australia. With Hayward, of Adelaide, Todd was a leader in the early work of formation of the Federal Committee, and quite recently took a leading part in altering the constitution of that body.

Above all intercolonial jealousies, Todd came to Australia a true Britisher. When he settled in Sydney he found the medical profession of Australia disunited in separate States, almost unknown to and jealous of each other, contemptuous of any work done beyond the State boundaries. While becoming a great New South Welshman, proud of his adopted home, he worked hard to bring the profession and the Branches of the British Medical Association together, and lived to see as a result of his work and his advice a profession united from one end of Australia to the other.

**Dr. W. N. Robertson writes:**

The medical profession in Australia has suffered by the passing of the two greatest figures in medical politics, within a short time of each other, G. A. Syme and R. H. Todd. Both men did great service in moulding the thought of the profession, both held a unique place in the hearts

of their colleagues, both lived up to the highest ideals of the profession. It was my great privilege to be admitted into the closest friendship with Todd. His death has been a dire blow to me.

We all know what he has done for us. New South Wales, of course, had the major part of his care and affection, but he has been a tower of strength to every Branch in Australia. When the Queensland Branch ever was in doubt, our first thought was: write to Todd; and we never went without his wise help and guidance. His legal knowledge, wide experience and lofty ethical outlook made him the ideal helper on every occasion.

It was to his wisdom and knowledge that we owe the safe and solid foundation of the Federal Committee of the Branches in Australia, and the foundation of THE MEDICAL JOURNAL OF AUSTRALIA was made possible by his skill in developing the scheme which made it an accomplished fact. He was its most thorough and helpful Secretary from its inception. Incidentally, when it fell into deep waters, he neglected to draw his tiny salary and, indeed, took up many debentures when the need was greatest.

The unusual conjunction of medical and legal training, combined with an altruism almost quixotic, made him an ideal mentor for the whole profession. Apart from his wonderful service to medicine in Australia, it was the man who appealed to me. He never thought of self, duty and service were his watchwords, and he never spared himself physically, mentally or financially if he could advance the cause he loved.

He had a sweet, pure soul, full of love for his fellows, and, indeed, for all animate things. It was an inspiration to know him. It was when one got close to him that the bigness of the man appeared. One glimpsed the fountains of goodness from which flowed those generous impulses and actions which glorified his life. And he was like Peter Pan—he never grew up.

One could go on indefinitely recounting his good deeds, but why gild refined gold? He gave freely, and he received in abundance the love of all his friends. His memory will remain green with us all for many, many years.

Dr. Gregory Sprott writes:

There is no one, I am sure, amongst our profession who does not deplore the passing of a member so loved and respected as Dr. R. H. Todd.

A resident of New South Wales, Todd was known and revered by his professional brethren in every English-speaking country, although most of his activities were carried on in Australia. The medical profession in Tasmania has a grateful memory of the invaluable assistance and advice that Dr. Todd gave unstintingly whilst on his holiday visits to Hobart.

Both as a Director of the Australasian Medical Publishing Company and as a member of the Federal Committee, I had the pleasure of being closely associated with Dr. Todd, and can bear witness to the vast amount of excellent work he accomplished for these bodies. As Secretary to both he was ever punctual and business-like. Methodical and resourceful, there were few difficulties he could not overcome. Indeed, "obstacles were but stepping stones" to him.

Owing to his uprightness and absolute fairness, together with an extensive knowledge and varied experience, Todd's opinion was frequently sought and much valued. He was ever willing to discuss any problem with his colleagues, equally ready to hear both sides, but with an alert and judicial mind, he quickly came to a decision, and was fearless in expressing opinions which he believed to be right.

A selfless man, he was ever ambitious to guard the welfare of others, and so not only was Todd respected, but he became a sound and trusted guide in all matters of a doubtful issue. As a man, his generosity and big-heartedness had no bounds. Those amongst us who had occasion to visit Sydney, will always remember him as the perfect host, omitting no detail which could add to our comfort and enjoyment.

Away from work Todd was a delightful companion, interesting and interested in everything, easily entertained

and appreciative of any little kindness. His enjoyment of the simple things of life was refreshing, not only to himself, but also to his friends. He was a great lover of animals and nothing gave him greater delight than to show his colleagues how the inmates of the "Zoo" responded to his alluring and kindly voice, and to partake of the choice morsel he had so thoughtfully provided.

Amongst my cherished memories is the day we spent together on his way to England less than a year ago. He was lunched by the Branch (every available member being present), and in a short speech he delighted us with some of his early reminiscences. In a subsequent drive to Mount Wellington he was equally happy among the mountain flowers and ferns.

By his death I feel I have lost one of my oldest and best friends. My personal feeling for him might be expressed in the few words of an eminent statesman on seeing the departing figure of Walter Page on a London railway station: "I loved that man."

We shall all miss Todd, but his good deeds will ever keep his memory fresh. We can honour him best by adopting the ideals which inspired his many successful achievements for the honour of the profession he loved so well.

Dr. C. Gifford Croll writes:

It was only towards the latter end of his life and work that I came into close personal touch with Dr. R. H. Todd. His great achievements in organizing the medical profession in New South Wales and Australia were then behind him, and can best be told by others. But there was no abatement of his energy or his devotion to the interests of the profession, and his love of fun, which never died, made him the cheeriest of companions.

His attitude towards those of us who belonged to a younger generation was never that of a dictator—far from it—but of a guide and friend. With his vast fund of information he was always ready to advise and guide us on any question, but never to dictate. And his advice, whether in dealing with friendly societies, governments, or professional bodies, was always to reason and to compromise, never to break off negotiations and fight. That, I think, was the secret of his great influence with the Government and the friendly societies of New South Wales. They always felt that Todd would explain his side of a question and carefully study theirs.

We cannot say that his death was untimely. He had almost reached the allotted span, and his work was done. But we do feel the quality of our loss and how very much in the future the medical profession is going to miss the guiding hand of Todd.

Mr. A. F. R. Simpson, Manager of the Australasian Medical Publishing Company, Limited, writes:

The death of Dr. Todd has taken from us the founder of THE MEDICAL JOURNAL OF AUSTRALIA and a staunch supporter of the Australasian Medical Publishing Company, Limited, in which he held the position of Secretary. In all questions of policy Dr. Todd was its final arbiter, and his decisions, always based on high ethical principles, were materially responsible for the high standing of the Company.

It was my privilege to accompany Dr. Todd to Melbourne some two years ago, and although I had worked with him prior to this, it was not until then that his generosity and concern for the welfare of others was so markedly apparent to me. He was a man in whom one could have implicit trust; his sincerity immediately gave to those who wished to approach him with personal or business matters the greatest confidence. He was a gentleman in every sense of the word, and his friendship was a most valued possession.

#### DEDICATION CEREMONY.

A meeting of the New South Wales Branch of the British Medical Association was held at the British Medical Association House, 135, Macquarie Street, Sydney, for the purpose of dedicating the Robert H. Todd Assembly Hall to the memory of the late Robert Henry Todd.

Dr. George Bell, the President of the New South Wales Branch, occupied the chair. Mrs. Todd was present. Among those representing the other Branches and public bodies were the following: Mr. C. H. Fagge (the Council of the British Medical Association), Sir Henry Newland (Federal Committee of the British Medical Association in Australia and the South Australian Branch), Dr. E. S. Meyers (Queensland Branch), Dr. E. Sydney Morris (Tasmanian Branch), Dr. J. Newman Morris and Dr. R. H. Fetherston (Victorian Branch), Dr. C. H. Shearman (Western Australian Branch), Sir Louis Barnett (New Zealand Branch), Dr. W. N. Robertson, Mr. A. F. Roots Simpson and Mr. J. H. Noldt (Australasian Medical Publishing Company, Limited), Dr. J. H. L. Cumpston (Director-General of Health, Commonwealth Department of Health), Dr. Robert Dick (Director-General of Health, New South Wales), Dr. G. H. Abbott (Medical Board of New South Wales), Mr. W. A. Selle and Brigadier-General Mackay (the University of Sydney), Mr. Roper and Mr. Le Souef (Trustees of the Taronga Zoological Park), Dr. H. C. Moxham (Australian Dental Association), Professor J. D. Stewart (Veterinary Association of New South Wales), Dr. R. A. R. Green (Australian Nursing Federation), Mr. J. Williams (Friendly Societies' Association), Mr. R. J. Love (Hospitals Commission of New South Wales), Mr. G. W. Cocks and Mr. J. O. Maddox (Messrs. Tress and Cocks), Mr. R. J. Stiffe (Messrs. Coates, Cunningham and Company).

Dr. George Bell said that the Council of the New South Wales Branch of the British Medical Association had resolved on Tuesday, January 5, to call a special meeting to pay homage to the memory of Dr. Robert Henry Todd. They felt that it would afford an opportunity to express the high opinion held of his great and unique services to the British Medical Association, not only in New South Wales, but throughout the Commonwealth and the Empire. It was also thought that it would provide a suitable occasion on which to dedicate the Assembly Hall to his memory, and they were deeply grateful to Sir Henry Newland, the Chairman of the Federal Committee of the British Medical Association, for coming from Adelaide to perform the ceremony.

Dr. Bell then spoke as follows:

Robert Henry Todd was the elder son of Armstrong Todd, M.D., and was born in London on July 10, 1859.

Of the influences which go to make a man what he is, heredity and early environment count for much. Dr. Todd was very proud of his relatives. Several of them had been members of the medical profession during the nineteenth century. Thus Charles Hawkes Todd was a President of, and Professor of Anatomy and Surgery to, the Royal College of Surgeons of Ireland in the early part of the nineteenth century. His son, Robert Bentley Todd, was an uncle of Mr. Robert H. Y. Todd. Robert Bentley Todd was a remarkable man. He was educated for the bar and on the death of his father took up the study of medicine. In 1836 he was appointed, at the early age of twenty-seven, Professor of Anatomy and Physiology in King's College Hospital, London. He was elected a Fellow of the Royal Society and became an M.D. of Oxford. He was an author of some note and at the early age of twenty-six wrote his great work "The Cyclopaedia of Anatomy and Physiology". Later, with Bowman (of eye fame), he wrote "Physiological Anatomy and Physiology of Man". He was a fine clinician, and it is by his clinical lectures that his name will always be remembered in the history of King's College Hospital. He is one of the few medical men to whose memory public statues have been erected, a statue being erected in the entrance hall of King's College Hospital.

Another uncle, James Henthorn Todd, was a Fellow of Trinity College, Dublin, and a very distinguished antiquarian.

Robert Henry Todd graduated in Arts at Oxford (Hertford College). He was a good athlete and excelled in rowing, swimming and running. While at Oxford he rowed in the Hertford College crew that was head of the river in 1881. His oar may still be seen in the Hertford College barge on the river at Oxford.

He next went to Trinity College, Dublin, where, in 1886, he obtained the degree of Doctor of Medicine, and in the following year the Fellowship of the Royal College of Surgeons of Ireland.

In June, 1887, he married Miss E. J. Orr, and shortly afterwards sailed for Australia, and arrived in Sydney in October, 1887. For several years he practised medicine, first in Sydney and then at Maclean, on the Clarence River, New South Wales.

Dr. Todd was ambitious of specializing in surgery, but an old infection of his wrist joint limited the movements of his wrist and fingers, and he resolved to study law. He was admitted to the New South Wales Bar in 1894.

In 1891 he became a member of the New South Wales Branch of the British Medical Association, and in 1906 was elected a member of the Council. He became a member of the Council again in 1908, and from that year remained so until his death.

He was Honorary Secretary of the Branch from 1908 until March, 1931, a period of twenty-three years.

In March, 1931, he was elected President of the Branch and bore the title of President-Elect. Had he lived, he would have entered upon the duties of his office this year, and there is no doubt that he would have represented the Branch at the centenary meeting of the parent Association in London this year. He would have occupied the chair which he gave to the Branch and to the designing of which he devoted so much care and attention. This chair bears the following words from Tennyson's "Holy Grail":

In our great hall there stood a vacant chair  
Fashioned by Merlin ere he past away  
And carven with strange figures

And Merlin called it the "Seige Perilous"—  
Perilous for good and ill, "for there", he said,  
"No man could sit but he should lose himself".

*Galahad*: If I lose myself I save myself.

During 1931 he visited Great Britain and represented the Branch at the annual meeting of the Home Association at Eastbourne.

From 1922 until the time of his death Dr. Todd was a Vice-President of the British Medical Association, a distinction of which he was very proud.

He played a leading part in bringing about the satisfactory relationships that now exist between the various New South Wales friendly society lodges and the members of the Branch.

He was keenly interested in the formation of the local associations of members of the New South Wales Branch in various parts of the State, and he attached great importance to the annual meetings of delegates from these local associations with the Council. In this way he was able to bring the country members into closer contact with the Council.

Time would fail me to tell at length of his varied activities outside the Branch. Briefly:

1. He was a member of the New South Wales Medical Board from 1907 to 1928.

2. At the University of Sydney he lectured in medical jurisprudence for many years, retiring from the lectureship in 1931. He also held the lectureship in the ethics of medical practice from the time of its inception until his death.

3. He acted as City Coroner in Sydney for some time, and before the introduction of the *Arbitration Act* was chairman of many industrial boards.

Dr. Todd was intensely fond of music, and for many years was Honorary Secretary of the Sydney Amateur Orchestral Society. He played the clarinet in this orchestra under the conductorship of the late Signor Hazon.

He had a great love for animals. For many years he was a member of the Board of Trustees of the Taronga Zoological Park Trust and spent much of his spare time among the animals at the Zoological Gardens.

We meet, then, today to pay tribute to the life of a good and great citizen, who in his time played many parts and played them well.

This representative assembly is an eloquent testimony to the fact that the influence of Dr. Todd is felt and appreciated throughout this State and the Commonwealth.

Sir William Osler wrote: "A physician may possess the science of Harvey and the art of Sydenham, and yet there may be lacking in him the finer qualities of heart and head which count for so much in life." Robert Henry Todd possessed in no small measure those finer qualities.

My first acquaintance with Dr. Todd was when he lectured to me in medical jurisprudence some twenty-five years ago. One could not fail to be impressed by his high sense of professional duty and great mastery of detail, and these impressions were deepened in later years by association with him in the Council of our Branch. These gifts, combined with his knowledge of law and medicine, singularly fitted him to establish the British Medical Association in New South Wales on a sound basis by consolidating the efforts of the distinguished pioneers of our Branch. By reason of these qualifications he was also eminently fitted to enunciate the principles of and draw up the rules for the guidance of our various committees and local associations.

There can be no doubt as to the permanence and value of this work. It will endure and prove of great importance for many years to come.

Dr. Todd also possessed the finer qualities of the heart.

One of the greatest factors that has contributed to the success of our Branch during the last twenty-five years was Dr. Todd's personal contact with members. How often, during the last quarter of a century, have members, when confronted by some difficult problem in medical procedure, been advised "to see Dr. Todd"? To many of us who have never known the British Medical Association without Todd, it will seem a strange place without his erect figure and youthful spirit.

He was always willing to help, not in any partisan spirit, for he never accepted the *ex parte* statement at first hand.

It may be said that this mental attitude was the outcome of his legal training; rather would I have you think that it was due for the most part to his possession in no small measure of that crowning grace which thinketh no evil, which enviyeth not, which beareth, hopeth, believeth and endureth all things—charity.

Mr. C. H. Fagge said that he spoke not only as a representative of the Council of the Parent Body, but as a humble member of the Association. He referred to the work of Robert Henry Todd on the Federal Committee, and said that he felt that the President and the Council in England would wish him to accept the opportunity of expressing approval of the words spoken by Dr. George Bell.

Dr. Newman Morris said:

Robert Henry Todd was the central link in the organization which binds together those members of the medical profession in Australia who are members of the British Medical Association, and it was because of him and his work that we have become better acquainted with each other in the various State Branches.

The Council and members of the Victorian Branch are conscious of the great gap caused in the ranks of our leaders by his passing. We always regarded Todd as a source of strength and help, and a leader to whom we could appeal for information, advice or opinion. Such assistance was frequently sought by us, and his response was always prompt and willing. If information was sought on any matter regarding the welfare of our profession, it was supplied in the fullest detail; or if his advice was asked for, or his opinion desired, the same attention to detail was evident, and his wide store of experience and knowledge was made available.

Like other Branches, we in Victoria have had difficulties in our association with various sections of the public, and it was particularly in such matters that we found his wisdom and experience helped us. In a very real sense his influence was not confined to the boundaries of his own State; he, more than anyone else in the medical profession, belonged to Australia. The association on the Federal Committee of Todd with such men as the

late G. A. Syme, amongst others, was a very fortunate one for the Branches in Australia, and his organization of the medical profession will always be gratefully remembered.

This building, in the erection of which he took such interest and pride, and this hall, which is to be dedicated in his name, will in its very masonry maintain contact with his memory, and in no less degree will his spirit pervade the structure of the organization of the Federal Council, to which he devoted so many of his latter days.

Through his official connexion with us we became acquainted with the man himself. There were present in him those attributes of character and conduct which inevitably engendered feelings of admiration and affection. With his marked ability we felt safe with him at the helm; but his gentle courtesy, his kindly consideration, and his personal charm caused his periodical visits to Melbourne to be anticipated with pleasure. His bright and active personality was always a stimulus, and did very much to cement that interstate unity that has developed so largely because of his work.

Some of us were privileged to gain a closer acquaintance, and we learnt more of the man himself, whom we had known only as an official leader. When we visited this city, whether collectively or individually, our first objective was to call upon Todd. He always welcomed us so warmly. His interests were revealed to us, his intimate friendship with animals, his simple love for his home, his garden, and all that was beautiful in this world.

The Council of the Victorian Branch has placed on record its deep regret at his death, and its appreciation of his great work in the organization of Australian medicine. By such organization on the medico-political side Todd has aided to a marked degree the advancement of the medical and allied sciences, and he belonged to us all. A wise, learned and courteous gentleman, the true friend of his colleagues, has gone. It is gratifying to your fellow members in Victoria that the memory of one who was their friend, as well as yours, is being perpetuated by the dedication of this fine hall in his name.

Dr. E. S. Meyers, President of the Queensland Branch, said he had been requested by his Council to be present at the dedication ceremony to pay a tribute on behalf of the members of the Queensland Branch to the memory of Dr. Todd, and to express their sorrow in the sad loss sustained by the New South Wales Branch.

It was very difficult to pay a tribute satisfactorily to the late Dr. Todd, as many of the men who had had association with Dr. Todd had gone to their long last rest.

As long ago as 1913 Dr. Todd had greatly assisted the Queensland Branch in their troubles with the introduction of the Model Lodge Agreement, and his help on that occasion had been of the greatest value to the Branch. From that date, on through the years, whenever the Branch had been in trouble, they turned to Dr. Todd, and his help had always been forthcoming. The minute book of the Queensland Branch was dotted with the name of Dr. Todd, and the office-bearers of that Branch of the Association had come to look forward with delight to the receipt of his letters.

Many of the members had met Dr. Todd at Federal Committee meetings and conferences, and looked eagerly forward on each occasion to meeting him; and some (as Dr. Robertson would tell them) enjoyed his very close friendship. In fact, it was felt in Queensland that Dr. Todd belonged there more than to any of the other Branches.

Dr. Todd had acted, as it were, as a post-graduate instructor to a succession of honorary secretaries in Queensland—Brockway, Butler, Allan, Meyers and Clark—and was truly "guide, philosopher and friend" to the younger Branch.

The leaders of the Association in Queensland believed that the work they were doing was important work, work that made for better citizenship and that was for the public good. In this way the importance of work of the kind carried out by Dr. Todd could not be fully estimated and measured up for immortality.

Dr. C. H. Shearman read the following tribute from Dr. D. D. Paton, Representative on the Federal Committee of the Western Australian Branch:

The Western Australian Branch wishes, through its representative, to join with the New South Wales and other Australian Branches in paying homage this afternoon to the memory of the late Dr. Todd.

Though Dr. Todd was a familiar figure in your executive offices and meetings, he did not come into personal contact with many of the members in our State, yet he was well known to all of them through the medium of the journal and because of his activities on behalf of the profession.

The mural tablet which you are erecting to his work and to his memory will endure as a testimony to the high honour in which he was held by his fellow members of this Association.

These walls are still too young to have gathered about them memories of an historic past, but today sees the commencement of their investiture with honour. As the generations pass and other faithful servants lay down their work, and as their accomplishments are symbolized here, this hall will become an inspiration to those who later will bear the burden of unselfish thought and endeavour for the development and advancement of their profession.

With his immersion in medical polity the call to further duty as your President must have been an exhilarating pleasure to Dr. Todd, and his death must leave by its suddenness its sequel of uncompensated loss.

To us outside your State he stood eminently for the high ethical principles that tradition and experience have laid down for the safeguarding and maintenance of our ideals, and for the practical ability to translate these, when necessary, into rules and regulations. So lately as when he was proceeding to London, although the liner did not arrive until midnight, he was ready to discuss with the Honorary Secretary of our Branch and myself many matters of ethical importance.

His work had provided him with a rich experience of men and affairs, and its details were always ready for use, so that when we turned to him for advice we never asked in vain, for he never grudged assistance, when a Branch required it, from his own accumulated store of observations.

His great interest and work in the establishing of the Australasian Medical Publishing Company, Limited, and THE MEDICAL JOURNAL OF AUSTRALIA were proof of his belief in the necessity for a closer union of the scattered members of the profession in the Commonwealth by means of one common journal. The success that now is following their establishment must have rejoiced his heart on his return from England.

Part of my cherished memories are bound up with my associations with him, memories of lucid thought, of courtesy, of unshakable principles, wide outlook and practical ability. The Western Australian Branch is proud of taking part in today's proceedings, when your Branch is signifying its true appreciation of the great work done by Dr. Todd, a life's work that was of value, not only for you, but for all members of the Association in Australia.

Dr. E. Sydney Morris read the following message from the Tasmanian Branch.

The British Medical Association has suffered incalculable loss in the death of Dr. R. H. Todd. We can safely say he was the most powerful influence we had amongst our Australian Branches.

Dr. Todd had a thorough knowledge of the Association's work, and there are few medical organizations that he did not assist in some way or other. His legal knowledge and practical medical experience made him a very valuable member of any committee or council and a great success in handling any difficult problem.

He was a big man with big ideas, most generous with his advice, always helpful, with one desire, to raise the standard of his profession.

The Tasmanian Branch has many records of his skilled advice and help so cheerfully given to its executive officers, and it is a pleasant memory that our members were able to meet and entertain him less than a year ago. As a Branch we recognize the extraordinary amount of work

he did as a member of the Federal Committee and in so many other activities.

The British Medical Association Australian Medical Congress showed its appreciation by bestowing upon him the British Medical Association Medal—an honour given to very few.

Dr. Todd will be much missed, but remembered as one always willing to give of his vast knowledge and experience for the benefit of the profession.

He was respected because of his knowledge and uprightness by every member of the profession, and loved by those who were privileged to claim his friendship.

Dr. W. N. Robertson said:

I was glad to be asked to offer a small contribution in honour of the memory of our great departed friend. I cannot claim such intimate relations with him as some of his New South Wales friends, but I am proud to think, that he admitted me into the most intimate friendship. Today I feel this is a gathering of a large family—a family that lives for the highest in everything that has placed our profession on an ethical plane that stands alone—to mourn the departure from our midst of the most loved and esteemed member of that family.

I think Robert Todd stood for all that is highest in the ethics and altruism of the profession. He never thought of self. He sacrificed his energies and health and his own financial interests at all times to build up the institutions of the profession, to build them upon sound foundations and rear them into edifices of enduring value to the profession and the public whom we serve.

I feel very happy that I was privileged to be associated with him in the early days of the Federal Committee of the Branches in Australia and the foundation of THE MEDICAL JOURNAL OF AUSTRALIA. He it was who drew up the constitution of the Federal Committee, and to his wisdom and foresight we owe the scheme for the establishment of the journal on a sure legal footing. When the Federal Committee came to the conclusion that there was a need for one journal for Australia, we turned to Todd for help and advice. It was left to him to draw up the Memorandum and Articles of Association and, throughout, we were guided by his wise counsel.

As Secretary of the Company he was unwearied in his devotion to and care of its interests; and when we were passing through the dark days of the venture, the dear fellow would not draw his tiny honorarium, and it was only by a very close scrutiny of the accounts that we found him out. His unfailing optimism was also a tremendous asset to us. When things were most black, his sanguine hopes helped to cheer us up and on.

Only those who were close to him can in a small way envisage the wonderful helper he was to the profession in Australia. Queensland owes him much. Of late years many gnotty problems, legal and ethical, have arisen, and we have not hesitated to pass our burdens on to him, sure of his kind interest and of a wise and satisfactory answer to our requests. His sense of justice, his upright outlook, fortified his legal knowledge so mightily that he seemed unable to be wrong. He had a noble soul, yet the heart of a little child. He was intolerant of anything low or mean or unkind. He seemed to love everybody and everything.

When we foregathered at congresses, federal meetings and the like, he took me into his care. He was my mother, I his son. And the greatest happiness of these gatherings was this affectionate intimacy with which he favoured me. I shall treasure his memory while life lasts as one of the contacts which has made life worth while.

New South Wales is honouring itself today in naming this beautiful hall after that beautiful soul who was so proud of this building and all its beauties. I think he felt it filled one of the aspirations of his life. I trust that the long race of men who haunt this hall may never forget the man who was largely its maker, or his wonderful life of sacrifice for the profession he loved so well.

Sir Louis Barnett said:

Many of us of the New Zealand Branch of the British Medical Association knew Dr. Todd personally, and his

presence at any of our congresses was always welcomed with enthusiasm. Some of us had the privilege of his personal friendship; all of us were aware of his untiring and successful work in moulding the destinies of the British Medical Association in Australasia.

To know him was to love him. He had the mind of a philosopher, the soul of an artist, and, above all, a heart of gold, full of loving kindness for all living creatures.

We of New Zealand lament with you the grievous loss we have all sustained. We extend our deepest sympathy to his widow and other sorrowing relatives and intimate friends, and in this noble hall, so fraught with precious memories of a life devoted to our interests, we bow our heads in love and reverence and gratitude.

Dr. F. P. Sandes spoke as follows:

"The student of medicine", saith Hippocrates the Asclepiad, "should be gentle by birth, of moderate stature and symmetry of limb, excellent by nature, of good understanding and pleasant conversation." Truly Robert Henry Todd was of the ancient guild, for were not his grandfather, his father, his uncle and his brother physicians and surgeons of note? Born in the medical purple, almost in the shadow of the Royal Academy of London, a scholar of Christ's Hospital, we follow him to Oxford for that training in the humanities, erstwhile, but now, alas, seldom, thought to be the necessary forerunner of the study of the healing art. We imagine with what delight he stored his mind with classic lore, history and dialectics, to fit him for education in the broad principles of medicine and law, and with what enthusiasm he trained his young and sturdy frame in manly sports.

But, compelling as was the influence of that noble seat of learning, it was family tradition that he should study medicine in Ireland, and the young Master of Arts entered at Trinity, in Dublin. No doubt, in lighter vein and on the college green, he took part in the usual devilments of the medical student in that distressful country. But to him, in serious mood, knowledge came easily, and to this day, amongst many distinguished sons of Erin, there stands preeminent his splendid record of academic virtue.

"Also", says Hippocrates, "he, who would follow the healing art, shall be chaste and courageous, no lover of money, self-controlled when angered, quick of understanding, sympathetic, kind, and a faithful guardian of secrets." To those of us who knew and loved him, he was all of these.

Married when young to a girl born amongst the armament of war, his restless ambition brought him and his young wife to Australia, and it is fitting that she, his partner in a strenuous life, should be with us today as we pay tribute to his memory.

For a while he gained experience as a physician, but fate (perhaps as he thought, unkindly) willed that his talents should be directed to other channels. The great principles of jurisprudence had for him a strong fascination. The mental pendulum swung to law, and he was admitted to the bar. While waiting for briefs, he cultivated his flair for orchestral music; his soul was ever in unison with the gentle note of the flute, the pathos and the fire of the violin, and the stirring sound of brass.

Of journalists, too, he had had some experience in his early days. Although we are oft reproached for silence when contumely is heaped upon us, we realize that his experience had taught him the dignity and value of extreme reserve in these days of meretricious publicity. Of gentle nature, his love of animals was proverbial. To him the sympathy of the dumb was even more precious than the good will of his fellow man. Whether dog or horse, or monkey or mammoth, they were all his friends. What one of us would dare to stroll through the gardens at the Zoo with the elephant's trunk around his waist? No doubt she had for him sincere affection in memory of her perilous journey across the harbour in the early dawn, coaxed by him all the way with a bundle of hay.

But as we enter this goodly house, his spirit reminds us in classic phrase in the mosaic under our feet that "opportunity is fleeting", and I must to my task. It is a difficult one, yet fascinating to attempt to place in proper

perspective the historic value of the constructive work to which this cultured, kindly and chivalrous man devoted his manifold hereditary talents and the best years of his life. Medicine has its divinities whom it worships, and its heroes whom it extols, it enshrines the memory of its masters of craft and its men of science who have fought disease and conquered pain, in veneration more lasting than symbols of bronze and stone.

But in the new and comparatively unknown field of medical statesmanship the glamour of history is wanting, so I make bold to establish the thesis that Robert Henry Todd, in this domain, was one of the great thinkers of his time and race, and a man of far-seeing wisdom, who has given to us a heritage which, perhaps, we do not yet sufficiently prize.

Pardon me if I go back to 1832, the date of the birth of the British Medical Association. Verily, this infant was born in troublous times and, as often happens, has become the giant of later days. It was the period of the Reform Bill, when so fierce was the strife between Whig and Tory that the warrior statesman who drove the French from the Peninsula and shattered the power of the great Napoleon had to barricade his house against the London mob. But the Reform Bill passed, the House of Commons was finally established to represent all classes, a new and self-confident parliamentarianism ruled in Britain, and the Iron Duke, who saved our island kingdom, lived to see democracy advancing and communism's first parade upon the Continental stage.

The significance of these changes was not lost upon the medical profession of the time. Strong as might be our age-long bond of sentiment, the individualistic and personal character of the physician's work would leave him at the mercy of any who cared to exploit him. Collectivism had to be met by combination to guard professional interests, and the British Medical Association grew in power and usefulness.

Early in the latter half of last century the British genius for colonization had so far developed this outpost of Empire that the Crown conferred upon Australia the right of self-government. Naturally, our political institutions took their shape and tone from those of the Mother Country, and autocracy held sway. But British colonies, in the assertion of a new independence, are prone to political experiments; the discovery of gold brought a large influx of population, and democracy advanced apace and asserted its rights to adult suffrage, to the intent and curious regard of the Mother Land. The first day of the twentieth century saw the federation of Australia and socialism, more or less advanced, became the fashion of the time. Political parties competed for popular favour with schemes for the welfare of all at the expense of the few. It appeared that in the near future Demos might become militant, and Asklepios, hitherto somnolent, stirred uneasily. He hearkened to the serpent, traditional emblem of his wisdom, and bethought him of buckler and sword.

At that juncture and some twenty-five years after the establishment of this Branch of the British Medical Association, Robert Henry Todd was elected to its Council. A little later he became its chief executive officer. Like parliaments and cabinets, our councillors and presidents come and go, but well-ordered growth of any organization needs continuity and implicit confidence in the more permanent executive. The need produced the man. He seized the opportunity and began to build for the future. To his proud spirit the helotry of his ancient and honourable profession was anathema. Slowly, persistently, with infinite tact and patience, with self-sacrificing industry, and with far-seeing wisdom in medical statesmanship, he dissolved the suspicions and antagonisms of individuals, districts and States towards each other and showed them the advantages of union in defence of their common interests. His instinct and training had taught him that justice and truth must ultimately prevail. In finance, organization, medical politics, ethics and the establishment of an Australian journal his facile yet analytical brain ever sought for the main principles amongst the enormous mass of detail, of which he was the accomplished master. With sweet reasonableness he led us gently to the promised

land of Australian medical unity, but himself he drove to the last extremity in the labour he had set himself to do. Somewhat fragile in outward aspect, and often an anxiety to his friends, only steel of the finest temper could have withstood the strain, and now in medico-political affairs the influence of the British Medical Association extends from Hobart to Darwin and from Carpentaria to the Leeuwin.

His comprehensive grasp of all matters dealing with the British Medical Association in Australia was early recognized by medical statesmen in the home country. Thither he went some years ago as plenipotentiary for Australia, entrusted with delicate negotiations, and returned successful, with an assured and honoured position in the medical statesmanship of our Empire. This year he would have gone, President of this Branch and Vice-President of the British Medical Association, to the centenary celebrations, and who more excellent than he? But, alas, it was not to be, and he passed to his reward, his memory deeply graven on our hearts.

A century has gone since the birth of the British Medical Association, and in what evil case are we at the present day. Man's individual cupidity and selfishness have aggregated themselves into national greed for money and power. A profound anaemia bids fair to destroy the world's bodily economy. The red gold corpuscles are clotted in vast thromboses of bullion in the vaults of the nation's banks. The financial physicians whom we humble mortals have been taught to trust, have failed to stay the progress of a pernicious disease. The czars of international finance seem as helpless as their serfs upon the dole. The frenzied incantations of the high priests in the temples of the golden calf are not understood of the common people, who ignorantly worship at the altar of Mammon. The demagogue, the politician, the economist have each their remedies. Unemployment, the love of pleasure, and the envy of him that hath not are as septic organisms invading a "*corpus minoris resistans*". The world heads to violent convulsion, to the abandonment of ideals and the triumph of the Prince of Darkness.

Can the profession of medicine afford to ignore these facts? From time immemorial it has grown in power and influence because of its adherence to ideals and because it has always cultivated the habit of service in the guardianship of the public health, even if that service had been given without any prospect of financial reward. But our ideals may become untenable, and with the materialism and greed of the times the day may soon come when we shall have to fight strenuously for their preservation, for the maintenance of our independence as guardians of the public welfare, and for the just recognition of the value of our work. We ourselves have educated the public to visualize the charming future prospect of free or very cheap medical service of the highest order. Air and sunlight are the gift of God; why, therefore, should not health be free as a god-like benefit of our tutelary Asklepios? Persistence in open-handed generosity tends to breed mendicancy in the recipient until he demands its continuance as his inalienable right. The ear of the demagogue is sensitive to the whisper of the market place. Political parties have multitudes of generous aspirations, but their cabinets a paucity of pence. Why not make use of the foolish medical profession? These ideas of the politicians will need to be counteracted by the further development in Australia of medical statesmanship, in which Robert Henry Todd was the eminent pioneer.

We are compelled to recognize that by now the State is largely socialized. Its real masters are the administrative bureaucracy, and the "new despotism" of Lord Hewart oppresses the citizen whose servant it is supposed to be. Solidly entrenched, highly intelligent, greatly experienced and well organized, they are for ever extending their activities and developing their ingenuity in inventing methods and increasing staffs to regiment even the smallest of our concerns. "Thou shalt" and "thou shalt not" are to them the breath of life. From vast engineering projects, such as the Sydney Harbour Bridge, down to the breakfast egg or the garden honey, the socialistic State takes control by medium of its bureaucracy, ever curbing the enterprise

of individuals (sometimes, no doubt, quite necessarily), nominally in the collective interests of the public. The medical profession must look these facts in the face. If it can be convinced that more rapid advance in medical science and a better distribution of the benefits of the healing art than now exists are more likely to be secured by direct nationalization, in compliance with communistic tendencies or the uncertainties of political theorists or by submission to a section of the bureaucracy, no doubt it will gladly sacrifice its independence and fall into step with similar movements of the times. But whatever may be the fate of this great Association as public sentiment in regard to the healing art evolves, we have at hand a wonderful instrument to guard those whom we serve and ourselves from harm—an instrument placed in our hands by the work of him whom this day we are met to commemorate. How well he has built must be left to the judgement of time unclouded by our sorrow today at our personal loss and the loss that Australian medical statesmanship has sustained. Nevertheless, we rejoice that he lived to see the full development of Australian unity in that great Medical Association which we are proud to call British, and to see the completion of this house and this hall of assembly called after him, and to be dedicated to his memory and to the continuance of the work of his life. How many things are there in this house through which his spirit speaks to us? His Strozzi lamp of remembrance burns in this building in memory of the fallen. His "Seige Perilous", in which a man shall lose himself, this day commands our assembly. Beneath our feet as we leave he speaks to remind us that life is short, art is long, and, gazing upwards, we see written on the archway his gentle admonition that "all healing comes from the most high".

Sir Henry Newland, in dedicating the hall, said:

I am glad that circumstances have permitted me to be present on this occasion to do homage to the memory of Dr. Robert Henry Todd and to dedicate this beautiful hall in which he took such pride. It has been said that "a sudden death is but a sudden joy if it takes a man in the state and exercises of virtue". Of no man could this be more true than of Dr. Todd. He was taken at his passing in the state and exercises of virtue. He was, in all he did, always dominated by the higher motives. One of seven wise men in Greece once contributed greatly to his reputation by the saying, "Know thyself". This is not easy to achieve. The more a man can know himself, the better is he for public service. The more he can keep the higher motives in the dominant place, the less likely is he to be driven from his course by praise or blame. Todd was so happily constituted that there was little or no need for him to examine the motives from which he acted. Unconsciously and without effort on his part, his motives always remained unselfish, sincere and pure. His interest was ardent in everything he undertook. Of him it may well be said, as it was said of Earl Grey, "he lit many fires in cold rooms", and when he had fought the good fight and finished his course, death came to him, not as a badge of decay, but as a decoration—a decoration of which the insignia are some visible, some invisible. Those unseen, for they live in human hearts, are the trust, the affection and the pride of those he served so well. The surest pledge of a deathless name is the "silent homage of thoughts unspoken". Visible testimony to the works wrought by Robert Henry Todd, this fine hall which bears his name, will ever afford, and to his memory with all reverence I now dedicate it.

## Correspondence.

### WORKERS' COMPENSATION—TYPHOID FEVER.

SIR: So Dr. Badham is the villain in the piece! He announces he advised that the claim in this case might be well founded, but he leaves us to draw our own conclusions as to whom he advised and the circumstances

under which he placed his advice. His statement is such that an inference might be drawn that he considers his opinion carried sufficient weight to be a determining factor in the decision given in the case. This, of course, I find it hard to believe, but I can now fully appreciate his strenuous and somewhat strained efforts to justify the attitude he has taken up in this matter.

The whole tenor of Dr. Badham's letter clearly shows that he has failed to grasp my contention, that sewer workers are not more subject to typhoid than other members of the community. He describes me as a disappointed litigant. I was not a litigant, but I was certainly disappointed that any members of the medical profession could venture to give voice to opinions as expressed in their evidence. Nor have I any long-cherished beliefs that sewer workers do not get typhoid. I merely stated a fact, that they are not, by reason of their occupation, more liable to it than other people. This is based on an experience of many years, supported by evidence from other parts of the world.

With regard to the allegation that I have satirized the Commission: this I refute, for I have too much respect for a judicial body to do anything of the sort; but if my remarks could be considered to be in this strain, then it must be obvious that the shafts were directed at the medical evidence given in the case, a fair sample of which was as follows:

In answer to the question, "What do you say to the possibility of the applicant being infected by such routes as are common amongst other members of the community?" the reply was given: "I should say that it was impossible and utter nonsense to imagine it." I leave my readers to judge whether this does not call for something stronger than mere satire.

Dr. Badham states that I cited facts that made up half the story, but I purposely refrained from quoting references, relying upon facts within my own personal and practical experience in this particular matter. He wisely refrains from giving his experience, and then, I presume, attempts to tell the whole story by giving a reference to some laboratory work carried out in Belfast which showed that the typhoid bacillus was isolated in a certain number of local sewage samples. He appears to assume that the mere possible propinquity to the bacillus is sufficient to cause the disease.

The old belief that sewer workers do not contract typhoid in excess of the rest of the community is admitted by Dr. Badham as entitled to every respect, but, he asserts, this is founded on the discovery that sewer air does not contain many bacteria. This view, however, is altogether erroneous, and in my opinion there is no connexion between the discovery and the belief. The latter is founded on the experience of direct observers everywhere, and is very strongly supported by the statistics which Dr. Badham himself works out.

Dr. Badham's position requires that he should be a scientific investigator of industrial diseases, and he does not need me to tell him that his aim should be at all times the beacon light of truth. However accurate his observations should be, if his deductions and conclusions are false, then he has failed. That he accepts this proposition I know, for I have before me his last annual report (for the courtesy of forwarding the same to me I thank him), in which he states in connexion with cases of occupational dermatitis amongst bakers: "The somewhat muddled stream of present day thought . . . suggests the recording of facts rather than the expression of opinions." Here he looks askance at opinions and asks for facts, but now we find him reversing the process, welcoming opinions and trying to escape from facts. At the risk of repeating myself, I shall give him one fact, the fact that sewer workers do not contract typhoid in excess of other members of the community, a fact that has been noted and commented on by other observers, a fact (termed a belief by Dr. Badham and described by him as entitled to every respect) which he supports by a statistical inquiry showing that at the average incidence rate there might have been one case in this group of men in fourteen years, whereas there was one in twenty-five years. How this shows an "acquired interest" (as accepted by Dr. Badham)

in the disease for this occupation is beyond my conception. His figures, indeed, materially strengthen my contention. Dr. Badham has departed from his principles, he brushes aside his adherence to facts, and plunges into the realm of opinions.

I do not propose to discuss the absurd contention that sewer workers are immune from typhoid, and in reply to the query as to whether I have looked for such cases amongst these men, I might point out that the system under which I work requires a report from me in all cases of sickness amongst our employees. The possibility of missing cases of typhoid under these circumstances is remote, and the comparison of these cases with such a morbid condition as fibrosis of the lungs in miners is, to say the least, misleading in this argument. The former is an acute disabling disease, readily detected on any reasonable clinical examination and observation, whereas fibrosis is only shown for certain on a special X ray test.

The fact that Dr. Badham has records of a few cases of typhoid amongst sanitary service men means nothing unless he is in a position to exclude in these cases the possibility of infection being received from sources not associated with the men's employment. I do not care if he has records of a hundred of such cases. To establish his proposition, he must be able to demonstrate this exclusion beyond all reasonable doubt.

Does Dr. Badham consider that examination of samples of foodstuffs conducted weeks after a person has been infected, and which samples obviously could not have been ingested by the patient, can be held to be, when typhoid bacilli are not found therein, evidence that similar foods, or foods from identical sources, did not carry the organisms at an earlier date? Of course he cannot, but yet he says the milk supply in this case was examined and exculpated. He seems to be attempting to use an argument, in which he does not believe, to produce an unconscious effect on his readers in support of an untenable position. Surely this is quite unworthy.

What appears to me to be the most serious aspect of the case is that by the decision given typhoid fever is now to be regarded officially as an industrial disease for this class of workers, and this position has been established by a body of laymen on Dr. Badham's "think so" and the opinions of two practitioners, neither of whom has any special qualifications or experience enabling him to express views that should carry any weight on the point at issue.

Dr. Badham is Medical Officer of Industrial Hygiene for the State of New South Wales, and as such he is in a position to issue *ex cathedra* pronouncements on his subject. Remembering the weight that these carry, he should be very sure of his grounds before he releases any. I suggest, without any offence, that his practical experience with the disease and his opportunities for investigation into the epidemicity of the same have been very limited. No doubt he has acquired some book learning on the subject, but as an authority he appears a broken reed. Now I proffer some advice with the object of his becoming better qualified for his high and responsible position. Let him personally investigate every case of typhoid reported in the State for a period of, say, twelve months, the investigation to be conducted with the sole view of ascertaining the source of infection in each case, not by means of a questionnaire to the local sanitary inspector, but by a minute inquiry by himself, employing all the resources of a modern laboratory in the search for the detection of the bacillus. At the conclusion of the inquiry, when he has digested all the facts he has accumulated, I can well imagine he will be in a much humbler frame of mind. His announcements as to what might or might not be will be accepted by his disciples as coming from one who has learned, and due weight and respect will be accorded to his dicta, but in the meantime it appears to me that he has made a nice little quicksand for himself and walked into it. I propose neither to follow him into the slough nor to put out a plank to help him ashore.

Yours, etc.,

E. S. STOKES.

Sydney,  
January 28, 1932.

## DIATHERMY OF TONSILS.

SIR: I do not quite appreciate what is behind Dr. Watkins's letter. I have repeatedly asked for unfavourable reports. In order to avoid cross-questioning and to help intelligent answers, would anyone send such reports to the Honorary Secretary of our Section, Dr. Gutteridge, No. 12, Collins Street, Melbourne. May I in turn ask Dr. Watkins why should tonsils be removed completely. In the *American Journal of Diseases of Children*, July, 1931, there is an article by Selkirk and Mitchell which reviews the results from tonsillectomy.

Many of the symptoms and conditions supposed to be associated aetiologically with diseased tonsils are those in which the natural course and incidence, regardless of the effect of tonsillectomy, are not known. Many of them, too, are affected by other factors than tonsillectomy in as yet unknown manner. It would seem that the conclusions drawn from some of the studies which are widely quoted as showing the effects of tonsillectomy, are decidedly open to question because of failure to consider other factors in evaluating the results.

Diphtheria is the only symptom studied in which tonsillectomy seems to furnish a clear-cut protection.

In another part of the article they suggest that removal of adenoids alone may be as effective as the combined operation in lessening colds, nasal obstruction and ear troubles.

Their conclusions agree with others published recently in England.

The one outstanding feature is that Schick positives become Schick negatives within a few months after tonsillectomy. As this can be more easily effected by immunization, even this solace is denied to the wholesale tonsillectomist. No one has had his preconceived ideas more upset than I, the loudest scoffer of them all. In the last six years my work has been chiefly with adults, and personally I am convinced that complete removal is unnecessary in adults.

May I end on a personal note that is suggestive. During January we had an epidemic of naso-pharyngitis, query influenzal. My three young children (nine to thirteen) started it amongst their relatives. Three of my elder children and two of my grandchildren had antral trouble. All had been tonsillectomized. My three young children and myself had no antral trouble, though I have had sinusitis previously.

Increase in the incidence of sinusitis in America and England has been noted in every "follow up" amongst the tonsillectomized. Of course, it may be that those who had their tonsils removed were those who before the operation were also more subject or more prone to sinusitis.

The two other symptoms which have been noted as more frequent among the tonsillectomized, are headache and growing pains.

The position is interesting and worthy of review, especially by those with a large hospital clinic. I would suggest in very young children whose symptoms are urgent, removal of adenoids alone, treating very large tonsils by several punctures with diathermy. Chloroform is an excellent anaesthetic in the very young. In older cases the adenoids can generally be treated with diathermy. The end to be gained is (i) removal of redundant lymphoid tissue, (ii) removal of sepsis.

Yours, etc.,

W. KENT HUGHES.

22, Collins Street, Melbourne,  
February 29, 1932.

## MEMORIAL TO ROBERT HENRY TODD.

In consideration of the great services rendered by the late Dr. Robert Henry Todd to the New South Wales Branch of the British Medical Association and to the

medical profession throughout Australia, the Council of the New South Wales Branch has decided to inaugurate a fund in order to perpetuate his memory by the establishment of an annual prize at the University of Sydney in medical jurisprudence, in which subject Dr. Todd was lecturer for twenty years.

It is confidently expected that many members will welcome the opportunity of showing in some way their appreciation of Dr. Todd's services.

Subscriptions may be sent to the Medical Secretary, New South Wales Branch of the British Medical Association, British Medical Association House, 135, Macquarie Street, Sydney.

SECTION OF THE HISTORY OF MEDICINE OF  
THE SOUTH AUSTRALIAN BRANCH OF THE  
BRITISH MEDICAL ASSOCIATION.

IN August, 1931, the Council of the South Australian Branch of the British Medical Association granted permission for the formation of a Section of the History of Medicine. The section has been established, with Dr. A. A. Lendon as the first President, and Dr. F. S. Hone, Vice-President.

Owing to the illness of the President, the inaugural meeting was held at Dr. Lendon's private residence on November 12, 1931, and was attended by twenty-six members. After the conditions of establishment had been read and confirmed, the President delivered the inaugural address, entitled "Horme Medicorum Subsecive", a most entertaining address, full of personal allusions to the methods adopted by some of his colleagues in filling their hours of leisure, concluding with a reference to the pleasure and benefit to be derived from regarding the study of the history of medicine as a hobby.

A vote of thanks to Dr. Lendon for his address, and for his much appreciated hospitality, was moved by Sir Henry Newland, and was supported by Dr. A. V. Benson, Dr. F. S. Hone and Dr. E. Britten Jones. Members present joined in expressing the hope that Dr. Lendon's health would permit him to attend many subsequent meetings of the section.

The next meeting will be held on March 17, 1932, when Dr. F. S. Hone will read a paper entitled "Some Historical Aspects of Smallpox".

## MEDICAL LIBRARIES.

A CORRESPONDENT from Melbourne has written in reference to the leading article appearing in the issue of February 27, 1932. He refers to the statements made in regard to the disabilities of country practitioners, and points out that if a member of the Victorian Branch wishes to consult a book from the Branch library, the book is sent to him by the librarian. The cost of the postage outwards is paid by the Branch; the member pays the return postage. If the member does not know what book he wishes to consult, he lets the librarian know the subject in which he is interested. An effort is made to find suitable references, and books are forwarded. Loose journals are not sent out unless duplicate copies are available. The arrangement is most satisfactory as far as books are concerned, and so that no wrong impression may be given regarding library facilities in Victoria, we gladly publish this statement.

## Books Received.

A GUIDE TO HUMAN PARASITOLOGY FOR MEDICAL PRACTITIONERS, by D. B. Blacklock, M.D., D.P.H., D.T.M., and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., F.Z.S., F.R.S.; 1931. London: H. K. Lewis and Company Limited. Royal 8vo., pp. 279, with 2 coloured plates and 122 illustrations in the text. Price: 15s. net.

PRACTICAL MEDICINE SERIES, COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: General Medicine; 1931. Chicago: The Year Book Publishers. Crown 8vo., pp. 814. Price: \$3.00 net.

POCKET CYCLOPEDIA OF NURSING, Edited by R. J. E. Scott, M.A., B.C.L., M.D.; Third Edition; 1931. New York: The Macmillan Company; Australia: Angus and Robertson Limited. Foolscap 8vo., pp. 733. Price: 17s. 6d. net.

### Diary for the Month.

MAR. 15.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 MAR. 23.—Victorian Branch, B.M.A.: Council.  
 MAR. 29.—New South Wales Branch, B.M.A.: Council (Quarterly).  
 MAR. 31.—South Australian Branch, B.M.A.: Branch.  
 MAR. 31.—New South Wales Branch, B.M.A.: Annual Meeting.  
 APR. 1.—Queensland Branch, B.M.A.: Branch.  
 APR. 5.—New South Wales Branch, B.M.A.: Council (Election of Officers and Standing Committees).  
 APR. 6.—Victorian Branch, B.M.A.: Branch.  
 APR. 7.—South Australian Branch, B.M.A.: Council.  
 APR. 8.—Queensland Branch, B.M.A.: Council.  
 APR. 12.—New South Wales Branch, B.M.A.: Ethics Committee.

### Medical Appointments.

Dr. T. C. Butler (B.M.A.) has been appointed a member of the Nurses' Registration Board, Tasmania, for the years 1932-1933, pursuant to the provisions of Section 3 of the *Nurses' Registration Act*, 1927.

Dr. A. E. Vivian (B.M.A.) has been appointed Medical Officer of Health by the Albany Municipal Council, Western Australia.

Dr. S. L. Dawkins (B.M.A.) has been appointed an Honorary Commissioner to inquire into and report upon Medical Examinations and Ambulances as applied to Railways in England.

Dr. T. C. Kohler (B.M.A.) has been appointed Honorary Medical Officer at the Wallaroo Hospital, South Australia.

Dr. R. E. Murray (B.M.A.) has been appointed Acting Medical Officer, Aboriginal Settlement, Palm Island, Queensland.

Dr. B. F. Moore (B.M.A.) has been appointed Honorary Clinical Assistant to the Ophthalmic Section, Adelaide Hospital, South Australia.

Dr. I. A. Hamilton (B.M.A.) has been appointed Honorary Clinical Assistant to the Surgical Section, Adelaide Hospital, South Australia.

Dr. H. H. Turnbull (B.M.A.) has been appointed a member of the Police Medical Board, Victoria.

Dr. A. H. Porter (B.M.A.) has been appointed Public Vaccinator for Merino, Victoria.

### Medical Appointments Vacant, etc.

FOR ANNOUNCEMENTS OF MEDICAL APPOINTMENTS VACANT, ASSISTANTS, LOCUM TENENTES SOUGHT, ETC., SEE "ADVERTISER," PAGE XVI.

LAUNCESTON PUBLIC HOSPITAL, TASMANIA: Resident Medical Officer (male).

MATER CHILDREN'S HOSPITAL, BRISBANE, QUEENSLAND: House Physician, House Surgeon.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SYDNEY, NEW SOUTH WALES: Honorary Relieving Assistant Dermatologist.

SAIN'T VINCENT'S HOSPITAL, MELBOURNE, VICTORIA: Honorary Vacancies.

### Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino, Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing.
SOUTH AUSTRALIAN: Honorary Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

### Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.